Instructional Renovation:

Integrating a "Good Idea" in Undergraduate Classes

A Dissertation Submitted to the
Faculty of Graduate Studies and Research
in Partial Fulfillment of the Requirements
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Doctor of Philosophy
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by
Sheryl D. Mills
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SUMMARY OF DISSERTATION

Submitted in partial fulfillment
of the requirements for the

DEGREE OF DOCTOR OF PHILOSOPHY

By

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Winter 2009

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ABSTRACT

The integration of an instructional "good idea" in undergraduate classes through the natural and evolutionary process of instruction renovation was the focus of this study. More specifically, the question "*What personal, contextual, and innovation-related forces act on the integration of active learning into the traditional signature pedagogies of university tenured faculty?*" was addressed in an extensive research agenda spanning seven years. In the mixed methods study central to this research portfolio, self-nominating faculty who were proponents of active learning at the University of Saskatchewan shared their stories and perceptions about integrating active learning in their undergraduate classes through written data, surveys, questionnaires, focus group meetings, and individual interviews. The study revealed that the integration of active learning, and the development of unique personal signature pedagogies, took place naturally in a benignly neutral environment, when desire met with combinations of perceived needs and timely, resonating active learning solutions. Rather than "change," instructional methods were gently "renovated" as participants experimented with solutions to address student learning needs. Active learning was fit together with personal and professional beliefs about student capabilities and effective instruction, and college signature pedagogies.

Participants indicated that supportive faculty development, student enthusiasm and engagement, policy that neither encouraged nor discouraged active learning, and the benefits of active learning were driving forces. Restraining forces included unsupportive or negative students and peers, a lack of alignment between stated organizational values and enacted values regarding

rewards, and time. Active learning was thought to be effective, but was also perceived to be complex, difficult to try and assess, and too dissimilar from other instructional methods to integrate easily.

Findings from the central study and experiences associated larger doctoral research agenda activities suggest that faculty development could be expanded to provide coaching and suggest instructional methods which are clearly linked with signature pedagogies and instructional problems, and that small manageable ways in which active learning can be easily and comfortably integrated in undergraduate classes are showcased. In addition, students could be encouraged to interact with faculty as often as possible, that student stories of engaging instructional activities be prominently profiled, and that stated organizational values be clearly aligned with enacted values and the formal reward structure.

Future studies might focus on the effects of "planting" highly-regarded teaching enthusiasts, the relationship between student and faculty enthusiasm and engagement, the effects of external rewards on the inclusion of active learning, the role of collegial support in the integration of active learning, and the process of integrating other "good ideas." Research might also be conducted on removing identified barriers and increasing driving forces identified in this study. An extension and elaboration of this study might create communities of practice on campus and encourage positive conversations about teaching as well as reveal additional driving and restraining forces that act on the integration of "good ideas" in undergraduate classes.

DEDICATION

This document is dedicated to my sons—
my best teachers and staunch supporters.

I have learned from you both.

To Isaac Mills

For your intense academic rigor, thrill of conflict, and drive to succeed.

To Taylor Mills

For your quiet tenacity, deep curiosity, and delight in discovery.

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Thank you to the participants involved in this study. I am honored that you chose to contribute your insights, experiences, and time so generously and enthusiastically.

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Finally, thank you to my advisor, Dr. Keith Walker, for his support, patience, and gentle guidance. With steady encouragement, unwavering faith, and diplomacy worthy of the United Nations, he has sheparded my process with his unique combination of eloquent candor and sincere grace.

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CHAPTER 1

THE PROBLEM

Introduction

For any number of reasons, there is often a gap between what is thought to be a "good idea" and the use of it. Scholarly literature and common perception suggest that change does not happen easily and is often fraught with angst and turmoil. A recent Google search yielded more than 36 *million* web pages that refer to change and people's resistance to change. There are hundreds, if not thousands, of books and countless workshops and services available on this issue.

Given the wide range of material on change and resistance, it seems that we are still searching for answers. The surprising insights found in this dissertation portfolio contribute to what we know about change. As a portfolio, this document is informed by the findings of a substantive core study, but also by the insights and experiences of my larger research agenda, which spanned seven years. The portfolio contains my focused effort to gain insights into change at the post-secondary level.

Specifically, I wanted to learn more about what contributed to the use of active learning in undergraduate classes through the stories, experiences, and perceptions of selected faculty. More generally, this dimension fit into my larger research agenda which was concerned with the integration of a curricular innovation, or the integration of a "good idea," into practice in the undergraduate university classroom.

Why this Study Now? Why Me?

Change fascinates me. I study it personally and professionally and, along with a deep desire to make classrooms places where student and teachers thrive, it has been a theme throughout my career in education. I had a feeling that what I had read and learned over my years as an elementary school teacher, and then as a university instructor and coach of teachers, was not the whole story.

While interested in change in general, I have a particular interest in instructional change and change at the University of Saskatchewan. To augment my multi-year doctoral research program and experiences of the inclusion of active learning in my own undergraduate classes, I designed a qualitative study to determine “driving” and “restraining” forces that act on the implementation of active learning in undergraduate classes. This study is the centerpiece of my dissertation portfolio and offers insight into the change process as related to the integration of active learning in undergraduate classes.

Any number of curricular innovations, or “good ideas,” could have been the focus of this study but I chose active learning. Since the publication of *Scholarship Reconsidered: Priorities of the Professoriate* (Boyer, 1990), university faculties across North America have adopted a more active stance towards the scholarship of teaching. Many universities, including the University of Saskatchewan, have used Boyer's ideas as a basis for revised mission statements; which have in turn directed faculty development initiatives, and provided a basis for decisions connected to promotion and tenure.

As an instructional practice with stellar credentials, active learning at the post-secondary level has received increased attention in the past 15 years.

Although compared to other instructional innovations such as internet use, technology integration, and collaborative and cooperative learning, the growth of active learning has been slight; the number of journal articles related to active learning has steadily increased (Poindexter, 2003).

My personal involvement with instructional change began in 1990. While developing resources for teachers on a wide variety of teaching strategies and beginning to teach undergraduate classes at the College of Education, I started a consulting company that focused on instructional practices. I developed several handbooks on coaching, professional development and teaching strategies, facilitated hundreds of workshops, coached K-12 teachers extensively on integrating various forms of active learning in their classrooms, and taught undergraduate classes for two education departments.

At the post-secondary level, my area of expertise was gaining momentum so in 1998 I shifted my focus from primary and secondary education to post-secondary education. When I was accepted into the doctoral program in 2002, I was no stranger to instructional practices or to the integration of these practices in classrooms. Throughout my doctoral research program my professional work was keenly related to the core study of this document. At the College of Medicine, I facilitated workshops on active learning for faculty, worked with medical residents taking TIPS (Teaching Improvement Project System), facilitated several student focus groups on instructional practices, and was available to faculty as an instructional coach. I worked extensively with one faculty member for four years and another for approximately two years.

The focus of my doctoral research program was a natural extension and intensification of my overall research agenda regarding the implementation of a "good idea." I was actively engaged in the research, study, and practice of either effective teams or active learning in undergraduate classes, and used active learning in the classes I taught. I had countless conversations with faculty, sessional instructors, and graduate and undergraduate students about their university classes. Artifacts of other studies carried out as part of my overall research agenda are in Appendix A-2.

Along with five co-authored publications in peer-reviewed journals, I also co-presented twice on active learning at post-secondary education conferences, and co-developed and participated in four poster sessions at medical education conferences across Canada. I had two book chapters published (Appendix A-5) related to my research agenda. I served on the Policy and Planning Committee for the College of Education and the Instructional Development Committee of the University, sat on the Steering Committee for *The Teaching and Learning Foundational Document* (University of Saskatchewan, 2008) at the University of Saskatchewan (Appendix B), and was a scholar with the Centre for the Study of Cooperatives. Any one of these was substantive enough to have produced a dissertation but all have informed my understanding of change in instructional renovation and the integration of active learning in undergraduate classes presented in this document.

Figure 1.1 illustrates the confluence of experiences, perspectives, and artifacts of my research agenda which contributed to the richness of insight

presented in this document on the integration of a “good idea.” In this case, the “good idea” was active learning in undergraduate classes.

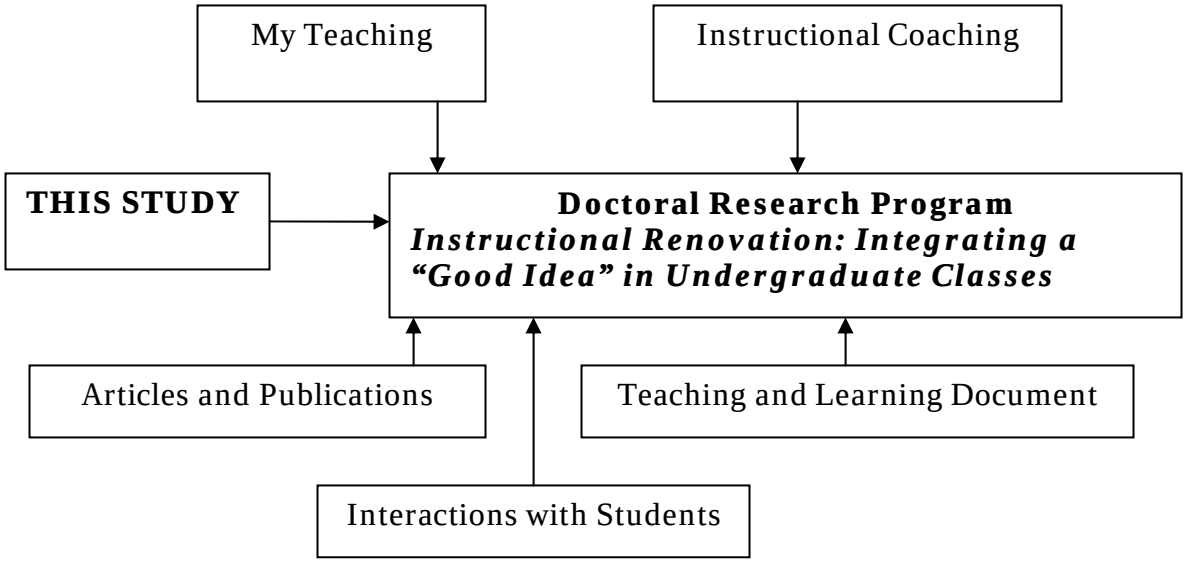

Figure1.1. Contributing dimensions to *Instructional Renovation: Integrating Active Learning in Undergraduate Classes*.

Chapter 1 sets out (1) the background, purpose, and significance of the study; (2) the delimitations, limitations, and assumptions; (3) the definitions used for the purposes of this study; and (4) the organization of the dissertation.

Background and Context for this Study

In the past 15 years, the University of Saskatchewan has raised the profile of teaching in a number of ways. The Teacher-Scholar Model was embedded in the Mission Statement and Goals (1993, p.1): “As an academic community, our mission is to achieve excellence in the scholarly activities of teaching, discovering, preserving, and applying knowledge.” The Board of Governors approved *A Framework for Planning* wherein the stated goals were to: (1) improve the quality of instruction, (2) intensify research efforts, (3) foster the Teacher-Scholar

Model, and (4) respond to the needs of aboriginal people (University of Saskatchewan, 1998). The Gwenna Moss Teaching and Learning Center was established in part as a response to these stated goals offering faculty development sessions targeting instructional practices and instructional support. In 2002, new standards for Tenure and Promotion were approved. As part of the development of *The Teaching and Learning Foundational Document* there were focus groups conducted by the Provost's office. From February to May 2006, 117 students participated in 18 focus groups, and over 240 faculty members participated in 25 meetings. The information from these meetings was shared with the university community for feedback in March 2008. In 2007, the University Learning Centre was created. The implementation of the GSR 989, *Introduction to University-Level Teaching* course occurred in 2007 and was further developed into *Transforming Teaching*. An undergraduate forum was implemented in September 2007. These initiatives sought to address the stated goals to improve the quality of instruction at the University of Saskatchewan and foster the Teacher-Scholar Model.

The Desire for Instructional Change

Generically speaking, the desire for instructional change appears to stem from research on effective teaching, changing student demographics, and an increasingly competitive marketplace (Bok, 2003). It might be that the first two are inextricably linked and the third plays out of the first two. The following sections address these potential driving forces for instructional change.

Research on Effective Teaching

A variety of means are used to teach at the post-secondary level with the ubiquitous lecture consistently the default. Expanding this perception, Shulman (2005) offered the notion of “signature pedagogies” or strategies that are used extensively and traditionally as teaching methods within individual professional colleges. For example, law engages students with cases and medicine uses clinical rounds. Further to this, there is a trend towards a*ctive learning* in undergraduate classes, regardless of college, to increase student learning. The research on active learning in its various forms is considerable and overwhelmingly singular in its support (Biggs, 1999; Nelson, 2001; Panitz, 2003; Russell, Hendricson, & Herbert, 1984; Terenzini & Pascarella, 1994; Wright & O'Neil, 1994; Zull, 2002). Active learning is any activity with the core elements of active, collaborative, cooperative, and problem-based learning introduced in the classroom that engages students in their own learning (Prince, 2004). Sharing some features with active learning, “signature pedagogies” deeply engage students through interaction and encourage “accountable talk” where students acknowledge the contributions of others before offering their own perspectives (Shulman, 2005).

Learning and participation are inseparable (Wlodkowski, 2003), and active learning engages students with course content in meaningful ways. Although current research on learning indicates that using a wide variety of teaching strategies in the classroom increases student motivation and learning, it might be ignored because "employing this emerging knowledge challenges the historic structure of the universities" (Smith, 2004, p. 31). Yet it is important to consider “whether it has already become immoral to teach without extensive use

of active learning techniques that so enhance performance" (Nelson, 1996, p. 172). Whether or not it is “immoral” not to use active learning, universities have caught on; active learning increases motivation, retention, understanding, and engagement.

Changing Student Characteristics

The traditional college student and the student experience has changed tremendously and the professoriate has been encouraged to adapt their instructional practices to better address the changed student body. Students are "more diverse in ethnic background, age, and participation patterns" (Smith, 2004, p. 30). They have families, work, or prefer to learn at a distance.

In addition to changing learner characteristics, learner attitudes have also changed. The post-modern generation wants fun, power in their hands, clear expectations and explanations, personal rapport with their instructors, honesty, and uninhibited use of technology (Fowler, 2003). In this milieu of changing student demographics and the advancement of understandings about learning, faculty members are encouraged to change their instructional practices to better meet the needs of the learner.

Universities in the Marketplace

Universities are in the marketplace (Bok, 2003) as they have perhaps never been before. Students and their parents are increasingly demanding a quality education in exchange for the tuition they pay. In Canada, *McLean's* magazine provides an annual, provocative rating of the country's universities to help potential students, and their parents, *shop* for a good university. Student recruitment is critical to the life of a university. Good teaching is one of the

aspects important to discerning consumers in an increasingly competitive marketplace and can draw students to one campus over another.

Forces Acting Against Instructional Change

In addition to the forces driving instructional change, there are also forces acting against instructional change. As mentioned earlier, the University of Saskatchewan (University of Saskatchewan, 1998) has four main goals: (1) improve the quality of instruction, (2) intensify research efforts, (3) foster the Teacher-Scholar Model, and (4) respond to the needs of Aboriginal people. Not only are faculty expected to address the quality of instruction and the Teacher-Scholar Model, they are also expected to intensify research efforts.

Although teaching and research are ideally linked, this is not always the case. Time spent on one is time away from the other (Bok, 2003; Boyer, 1990; Sandy, Meyer, Goodnough, & Rogers, 2000; Shea & Knoedler, 1994; Shell, 2001; Smith, 1991). Faculty members are researchers expected to carry on effective and potentially lucrative research agendas.

The faculty member's role is multi-dimensional and, in some cases, teaching might be seen as a peripheral engagement to research. Faculty members teach for only a portion of their time and usually have little or no teacher training. To a large extent, how a person teaches is considered to be a personal matter of style and a highly individualistic endeavour rather than a honed skill based on evidence. Tremendous effort is needed to change instructional practices.

Faculty might continue to teach as they were taught; perpetuating signature pedagogies and the ubiquitous lecture method of instruction, regardless of research on learning, changing student demographics, and the competitive

marketplace. The university is strongly research-focused, student demographics are changing, and students and some faculty might not always be enthusiastic about changing instructional practices. However, some faculty members include active learning in their undergraduate classes even though teaching with this approach requires a great deal of time, commitment and energy.

Purpose of This Study

Within the context of my larger doctoral research program, the purpose of this particular study was to determine the driving and restraining forces acting on the implementation of active learning in undergraduate classes as revealed through the stories and perceptions of selected faculty, and to use force field analyses and Kirkpatrick's (1994) framework of necessary conditions for change[1] to examine and organize these stories and perceptions in relation to *the innovation*, *the person*, and *the context*, and to explore the possible interactions among the forces identified in these categories.

Problem Statement

This study was guided by the following problem statement: What are the perceived driving and restraining personal and contextual forces (and possible interactions of these forces) contained in stories about teaching which contribute to the actualization of active learning in undergraduate university classrooms?

[1] Kirkpatrick (1994) indicated that four conditions are necessary for a change to occur: one must have a desire to change, one must know what to do and how to do it, one must be working in the right climate, and one must be rewarded for changing.

Research Questions

1. What were faculty members' stories and perceptions of active learning at the University of Saskatchewan? How did they know what to do and how to do it?
2. What were the personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What were their driving desires?
3. What were the contextual driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What was the "right" climate for them? How did they feel rewarded?
4. According to study participants and researcher, how might the interactions of these forces be described?

Significance

This descriptive and exploratory study is significant in several ways. It contributes to my research agenda on the integration of a "good idea" as it relates to the introduction and support of active learning in undergraduate education. It provides insight into university instructional practices as perceived by a small group of faculty who were self-proclaimed teaching enthusiasts. This study also contributes to the understanding of what drives and restricts instructional change at the post-secondary level. The driving and restraining forces identified in this study might help others strategically minimize the barriers and maximize the driving forces to encourage change in other organizations based on the experiences and perceptions of faculty actually using active learning. Last, this

study's significance is enhanced by the rather surprising insights, as revealed through the unique research design, regarding the development of sustainable personal signature pedagogies and instructional renovation.

Delimitations

According to Kurson (2004, p. 27), "the anchor line not only keeps the boat from drifting—which it might do anyway—but it also provides the way down to the wreck and, more importantly, the way back." The delimitations that kept this study from drifting were the following:

1. Many curricular innovations are being implemented in graduate and undergraduate university classes. To narrow the parameters, and in keeping with other studies I have carried out in this area, this study focused on incorporating a specific curricular innovation in undergraduate credit classes. Although active learning was the chosen innovation, this study was not about active learning or its perceived efficacy.
2. I chose to invite a small group of faculty who were self-proclaimed advocates of active learning at the University of Saskatchewan to participate in the study because of my involvement with active learning and instructional coaching on this campus. The study is delimited by not including other faculty from this university or faculty from other universities.
3. The population was delimited to faculty, as defined by the Faculty Association at the University of Saskatchewan with the exception of two instructors who held term positions.

4. The data gathering was conducted from March to May, 2007.
5. The research methodology was delimited to two separate half-day sessions that included activities and surveys to draw out experiences, stories, and perceptions of incorporating active learning in undergraduate classes. The data gathering period concluded with individual interviews.
6. The overall quality of the teaching was not evaluated. It was not the intent of this study to investigate the effectiveness or efficacy of either the instructor or of active learning as a teaching strategy, but rather to explore the driving and restraining forces acting on the implementation of active learning; whether the inclusion of active learning enhanced teaching or learning was not a component of this study.

Limitations

Any single research method has limitations. However, a variety of approaches were used to minimize these limitations. The boundaries and areas by which this study was limited were as follows:

1. The study was limited by not observing active learning in the classes participants were teaching. I did not go in to classes to observe whether or not active learning was being actually implemented. I relied on the participants to be truthful and accurate in their assessment that they were indeed incorporating active learning to some extent in their undergraduate classes.

2. This study provides insights of a general nature not only regarding curricular innovation in universities, but also regarding the sustainable implementation and integration of a "good idea" for individuals and organizations. However, because of the limited sample, the results of this study may not be specifically generalizable to other universities or faculty.
3. On a campus where people are well-known to each other, preserving anonymity is a challenge. In order to minimize the possibility of identifying individual participants, I chose to focus on the collective voice of participants in their experiences and perceptions of the driving and restraining forces acting on the inclusion of active learning in their undergraduate classes instead of featuring the individual voices of the participants.
4. This study did not address how participants learned about active learning. As self-proclaimed advocates, it was assumed faculty had acquired information about active learning at some time.
5. Except through self-report, this study did not measure actual change in teaching methods. The study relied on the participants' truthful reports on changes in their instructional practices as well as their perceptions of change rather than objective measurements of such changes.
6. It would have been interesting to know what students thought of the changes in the instructional practices, but this study did not look at their perceptions, nor did it study the influences of changed instructional practices on students' learning.

7. Although providing additional depth and insight, my prior experiences and expertise are also a limitation; these very experiences and expertise have also created an unavoidable, inevitable, and limiting bias despite a trustworthy design, careful and rigorous analysis, and balanced discussion. As the primary researcher, the lens through which this study was conducted is uniquely my own.

Assumptions

The assumptions made in this study were that:

1. Change is a process which may be described according to definite stages, and that these stages are recognizable, describable and, at least to some degree, universal.
2. Making changes in instructional practices in university classrooms is of value; curricular innovation is desirable, achievable, and possible.
3. As a curricular innovation, active learning contributes to effective instruction and is, therefore, a desirable innovation to pursue.
4. Some faculty members are interested in curricular innovation and have implemented curricular innovations in the courses they teach at the undergraduate level to include more active learning.
5. Experiences vary from person to person. The personal experiences and feelings of one individual may not be reflected in the experiences and the reporting of those experiences by others.

Definition of Terms

To make the study and its findings as clear as possible, it is important to define the terms used.

Webster (1958) and Oxford (1997) define *change* as to put a thing in place of something else, to exchange or substitute, to make or become different, to alter or vary.

Driving forces are those factors which increase the likelihood of change occurring and *restraining forces* are those factors which decrease the likelihood of change occurring (Lewin, 1951).

Although the term *active learning* can refer to any number of teaching techniques and there are many defining constituent elements of active learning, this study used a straight-forward clinical definition to engage participants. Active learning was defined as any activity that includes the core elements of active, collaborative, cooperative, or problem-based learning introduced in the classroom that engages students in their own learning (Prince, 2004). Case studies, simulations, demonstrations, experiments, debates, role play, small group discussions, creating visual representations and models, problem solving, research and presentations, and games are all examples of active learning.

For the purposes of this study, *personal forces* are those forces such as personal beliefs, attitudes, goals, career stage, values, motivations, feelings, resonance with the innovation, and role identification that have an impact on the adoption of an innovation. *Contextual forces* are those forces such as norms and values, rewards and resources, peer support, students, interpersonal dynamics, and faculty development that have an impact on the adoption of an innovation.

"Story," for the purposes of this study, includes participants' comments, statements, shared information, observations, anecdotes, and reflections.

Summary of Chapter 1 and Dissertation Organization

Chapter 1 presented a personal context for the study, the background to the problem, the purpose of the study and specific research questions, the limitations, delimitations, definition of terms and assumptions, and a summary of the major elements considered in the study. Chapter 2 elaborates on the conceptual framework, and Chapter 3 outlines the methodology used for the research and the specific research plan. Chapter 4 provides a systematic presentation and analysis of the data. Chapter 5 returns to research questions. Chapter 6 provides my interpretation and discussion of the data in relation to the existing literature as well as implications, conclusions, and possibilities for future study. Chapter 7 reports insights from other aspects of my research program. The Epilogue shares personal reflections on my own learning. The Appendix, integral to this portfolio, includes artifacts from my other areas of research on the integration of a good idea.

CHAPTER 2

CONCEPTUAL FRAMEWORK

Introduction

Driving and restraining forces that act on the integration of active learning in undergraduate classes were explored in this study by analyzing the stories, perceptions, and experiences of active learning proponents. Using categories adapted from Stark and Lattuca (1997) and Fullan and Stiegelbauer (1991), Chapter 2 reports literature relevant to the *context* in which the innovation is integrated, the *individuals* who are integrating the innovation, and the *innovation* itself. In this study, the innovation is active learning, the context into which the innovation is being integrated is undergraduate university classes, and the individuals who have integrated the innovation are a select group of tenured faculty at the University of Saskatchewan. Chapter 2 also provides a background on "change" as it applies to the integration of an innovation. Figure 2.1 provides the framework for the literature review.

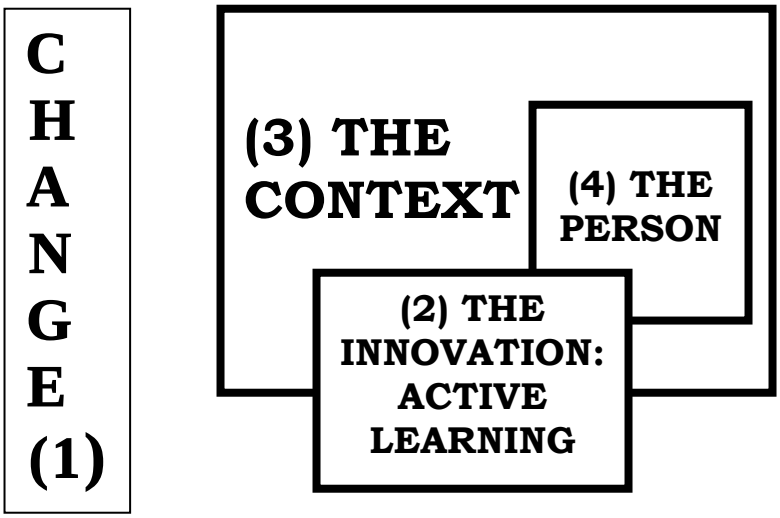

Figure 2.1. Conceptual framework of the literature review.

The chapter moves from the general to the more specific. The following section examines change and the change process in general terms and is followed by a look at the specific change under investigation—active learning. The chapter continues with a review of the literature on the context of the university where the innovation is being integrated followed by factors that may act on university faculty who integrate active learning in their teaching repertoires. The chapter concludes with a conceptual framework and summary.

Change Happens—But How?

Perhaps because "change" represents a potential threat to security, safety, or survival, there is no shortage of books, articles, web-sites, newsletters or workshops. Whether it is loss of control or loss of certainty, "change" can conjure up images and feelings of excess uncertainty, surprise, shock, being "different," loss of face, or concern about future competence. There is surprising uniformity in the literature on change. For the purposes of this study and its delimitations, I chose conceptualizations of change offered by Lewin (1951), Gardner (2004), and Tichy (2002), while acknowledging and integrating the contributions of Rogers (1983), Fullan (2003), and Sergiovanni (2000).

Defining "Change"

Change is putting a thing in place of something else, to exchange or substitute, to make or become different, to alter or vary (Webster, 1958; Oxford, 1997). To have changed, there must be a difference in present or future behaviour (Kirkpatrick, 1994; Gardner, 2004). Gardner stated that "changes that occur 'within the mind' may be of academic interest, but if they do not result in present or future changes of behaviour, then they are not of interest here" (2004, p. 5).

Change has occurred when something different is happening than what had happened before and this difference is observable. Change is also the process through which a person moves from one type of behaviour to another type of behaviour that is different from the previous one.

The Change Process

Kurt Lewin (1951) offered a basic change model of unfreezing, changing, and refreezing. Fullan and Stiegelbauer (1991) expressed these stages as initiation, implementation, and continuation. Rogers' model (1983) consisted of the five stages of (1) becoming aware of the innovation, (2) forming an opinion about it, (3) deciding to adopt, (4) integrating the innovation, and (5) deciding whether or not to keep the innovation after it has been integrated. Although there are variations on the process of organizational change, the stages of disruption, reforming, and moving to stasis are consistent.

There is a tendency for systems—individuals, groups, or organizations—to conserve energy by holding fast to rules, norms, and codes, or to a clear and stalwart vision of the future. Lewin (1951), who provided much of the foundational work for our current understanding of change, offered that a system was in a state of equilibrium or non-movement, and would stay that way unless it was *unfrozen* by creating an imbalance in driving and restraining forces. "Driving forces" encourage change and "restraining forces" oppose the change. Unfreezing the static state of equilibrium is the challenge and hope for change in any system. Consequently, the literature tends to focus on unfreezing the "current state" because a system only becomes malleable once it begins to thaw.

In the equation *Change = [D + V + FS] > I*, Tichy (2002) indicated that the potential for change occurs when the ***D****issatisfaction* with the status quo, a compelling ***V****ision* of the future, and positive ***F****irst* ***S****teps* are greater than ***I****nertia*. The actual change, doing something differently, occurs in the unfrozen state before the system once again seeks stasis or equilibrium, and *refreeze*s. Faculty development accessed when the system or situation has thawed may *reform* the replacement behaviour and coaching can help the new behaviour *refreeze*. Each of the three states will be expanded upon in the following sections.

Unfreezing the Static State

The forces for change have to be great enough to overcome the desire to remain the same. The status quo does not have to be optimal, but the potential for change only occurs once the pain of the current situation is too great or the potential for benefit is greater than the perceived difficulties in making the change (Connor, 1992; Schein, 2004; Tichy, 2002). There is little impetus for individuals to change if their situation is comfortable and things seem to work. Only when it becomes apparent that the existing situation is not as effective as it could be that change is possible. The initial step in the change process, then, is simply to notice and accurately assess the current situation.

A confluence of factors may be necessary to lead to this stage of awareness. Individually, factors may be "necessary but not sufficient" to instigate change (Zukav & Francis, 2001). Identifying contributing factors and the point at which there is the potential for change is difficult. Certain conditions contribute to this *tipping point* (Gladwell, 2000), or the point at which change occurs. The qualities

and characteristics of the innovation and of the individuals making the change within their organizational context have an impact on the adoption.

Changing minds. Gardner (2004) indicated that "it is more difficult to change minds when perspectives are strongly held, and publicly, and by individuals of rigid temperament" (p. 62). Minds are more easily changed, however, when "individuals find themselves in a new environment, surrounded by peers of a different persuasion...or when individuals undergo shattering experiences...or encounter luminous personalities" (p. 62). Fullan (2003) stated that we may assume that the context, or the set of conditions, in which we function cannot be easily changed when in fact small changes to the context may be easier to make than changing the background of individuals. Given "*Change = [D + V + FS] > I*" (Tichy, 2002), the causes of dissatisfaction, the vision, and the positive first steps that faculty took to overcome inertia and change their instructional practices are relevant to this study.

Driving and restraining forces. The desire to change, knowing what to do and how to do it, the right climate, and appropriate rewards (Kirkpatrick, 1994) influence the adoption of an innovation or a change. This section examines general driving and restraining forces.

Various organizers are presented in the literature from which driving and restraining forces might be categorized. Lewin's (1951) categories of driving and restraining forces are technological, organizational, external, and internal. The technological sources of driving and restraining forces come from knowledge and research surrounding the innovation as well as the technical abilities and training of those involved in integrating the innovation. Organizational sources are

policies, rules, procedures, customs, or regulations that are part of the organization. External sources are policies, regulations, laws, and demands that originate from outside the system. Internal driving and restraining forces are beliefs, attitudes, values, and feelings of the individuals involved with the innovation.

Sergiovanni (2000, p. 162) offered that bureaucratic, personal, market, professional forces, cultural, and democratic forces are categories of driving and restraining forces. Bureaucratic forces are the rules, mandates, and standards of the organization. Personal forces are the personalities, leadership styles, and interpersonal skills that impact the innovation. Incentives, individual choice, and competition are market forces. Professional change forces are standards of expertise, codes of conduct, collegiality, felt obligations, and other professional norms; and cultural change forces are shared values, pedagogical beliefs, relationships, and community norms. Democratic forces rest in shared commitments to the common good.

Forming and Freezing the Innovation into Practice

Faculty can participate in faculty development to keep current with new trends, learn new skills, and practice and refine existing skills (D'Eon, Overgaard & Harding, 2000; Feist, 2003). As well as providing information about *what to do and how to do it*, faculty development can provide support through the transition zone and can help individuals overcome inertia. Participation in faculty development may also be a measurable indication of interest and desire. Of particular interest in this study are the elements and factors that engage faculty in faculty development aimed at instruction as well as those that contribute to

disengagement of involvement. Did faculty take advantage of faculty development opportunities when integrating active learning in their undergraduate classes? What were the factors that swayed their decision to make these changes? What helped them implement instructional changes?

Refreezing the New state with Coaching

Adler (1982) defined coaching as helping a learner learn a new skill; the coach corrects mistakes and works with the learner until the new skill has been integrated. Non-evaluative coaching provides support, companionship and renewed enthusiasm. Focused on facilitating change and personal development (Joyce & Showers, 1982; Menges, 1987; Meyers & Gray, 1996), it is a powerful, intense, and personal way of making changes at a fundamental level; transferring learning into practice; and solidifying the new practice (Meyers & Gray, 1996; Whitworth et al., 1998; Wlodkowski, 2003). Potentially, coaching can change time-honored traditional ways of teaching in order to better meet the needs of students and to improve the quality of the undergraduate program. Faculty may be resistant, however, (Whitworth et al., 1998) and the organization may not be hospitable to change (Sunal et al., 2001).

While more traditional forms of faculty development have more limited potentials for promoting change (Billings & Fitzgerald, 2002), coaching has the potential to move instruction from didactic to active. In their study of teachers integrating a new teaching strategy, Billings and Fitzgerald (2002) found that traditional forms of faculty development like workshops were not as effective as other forms of faculty development. Like Zull (2002) who found that “doing the problem” was a crucial part of learning, Billings and Fitzgerald found that a

teacher “doing” the new strategy was important in the learning of it. Workshops were too removed from the actual experience of teaching, and, therefore, not as valuable or instrumental in changing teaching practices.

> Experts who talk about classroom interactions may not be as helpful to teachers as on-the-spot coach-mentors who observe and demonstrate and help teachers on a personal level–in their own classrooms with their own students–to fine tune the heart of their teaching in detailed ways. (p. 16)

Coaching resembles peer consultation in academic circles, but differs in that peer consultation is generally a single iteration, clinical in its approach, and of short duration. Many university teaching centers offer these services to faculty members, and all indicated that the consultation is non-evaluative, confidential, formative, and intended generally to improve instruction. Print materials from The University of Saskatchewan’s Gwenna Moss Teaching and Learning Centre state that peer consultations involve an initial exploratory needs-focused meeting with a volunteer peer consultant with special training. The peer consultant attends a class (with an explanation to students) to observe teaching and to gather information. The peer consultant then administers student questionnaire and might meet with a group of students to gather more information. The peer consultant meets again with the faculty member to discuss findings and prepare a confidential report.

Unlike peer consultation, coaching includes several iterations of such activities as one-on-one observation and feedback of teacher’s instructional strategies, and learning about new strategies and pedagogy (Neufeld & Roper, 2003). The “content coach” (Neufeld & Roper, 2003) helps “the learner to do, to

go through the right motions, and to organize a sequence of acts in a correct fashion" (Adler, 1982, p. 27). Faulty performances are corrected until a measure of perfection has been achieved.

Working with a coach can be helpful when faculty members navigate the change process. The coach can act as a guide to the possible difficulties along the way. With high degrees of personal investment, developing a coaching relationship and making changes to instructional practices are both highly charged innovations (Whitworth, Kimsey-House & Sandahl, 1998; O'Neill, 2000). If "teachers do not feel they are teaching if they are not dispensing information" (Panitz, 2003, p. 57), then for them to teach in a way that moves from traditional lecturing to a more student-centered approach may be addressing bedrock ideas they have about the very nature of teaching. Over and above the support offered by a peer consultation, long-term coaching and protracted cycles of action research may be needed to actually change instructional practices. A relationship between a coach and an instructor may develop as they spend the time and space necessary for meaningful and lasting change to occur in instructional approaches that may be of benefit to them both. As posed by Hanks (as cited in Lave & Wenger, 1991):

> While the apprentice may be the one transformed most dramatically by increased participation in a productive process, it is the wider process that is the crucial locus and precondition for this transformation. How do the masters of apprentices themselves change through acting as co-learners and, therefore, how does the skill being mastered change in the process? The larger community of practioners reproduces itself through the

formation of apprentices, yet it would presumably be transformed as well. (p.16)

In this way, coaching has the potential to be faculty development for both the instructor and the coach. This reciprocal arrangement both parties would benefit which ultimately benefits the organization as a whole.

The coaching relationship is dynamic, specific to the needs of the faculty member, and has the potential to be iterative and beneficial to both parties. Coaching also has the potential to provide the *right climate* as well as assisting the individual learn *what to do and how to do it*.

Figure 2.3 summarizes the key dimensions of change addressed in this section.

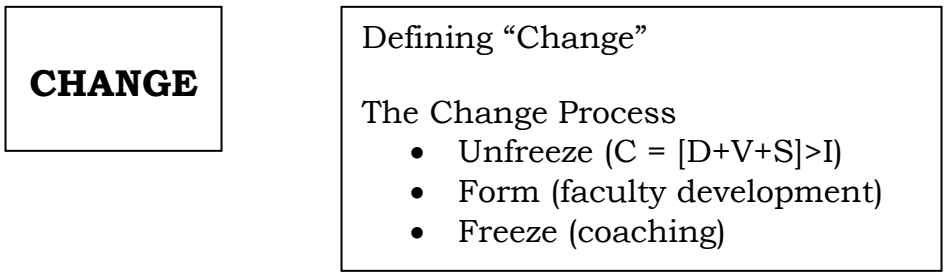

Figure 2.3. Key dimensions of change.

This section defined change and examined the change process with particular attention to faculty development and coaching as ways to support sustainable change. The following section explores the innovation of active learning.

"The Good Idea"—Active Learning

The implementation of any number of "good ideas" in terms of instructional strategies or methods could have been used to explore driving and restraining forces that act on the implementation of curricular innovations in

undergraduate classes. Whatever the innovation, Rogers (1983, 1995) suggested that the innovation itself be examined in terms of the relative advantage of the innovation over other ideas or current situation; the ease with which it can be tried in small ways and modified; compatibility with the existing values, past experiences, and the needs of the adopters; whether or not others can observe results from using the innovation; and how complex or easy it is to use or integrate.

For the purposes of this particular part of my research agenda, I chose to focus on active learning for three reasons: (1) my experiences as an instructor and instructional coach; (2) my expertise with active learning and the wide range of instructional methods that fall under the umbrella term of active learning; and (3) the current popularity of active learning at the post-secondary level. This study used Prince's (2004) definition of active learning: any activity that includes the core elements of active, collaborative, cooperative or problem-based learning introduced in the classroom that engages students in their own learning. Case studies, simulations, demonstrations, experiments, debates, role play, small group discussions, creating visual representations and models, problem solving, research and presentations, and games are all examples of active learning.

Research on active learning in its various forms is considerable and singular in its support (Biggs, 1999; Nelson, 2001; Panitz, 2003; Russell, Hendricson, & Herbert, 1984; Terenzini & Pascarella, 1994; Wright & O'Neil, 1994; Zull, 2002). Wright and O'Neil (1994) indicated that "teaching strategies and learning tasks used in university classrooms [currently] foster intellectual passivity because they focus on presenting knowledge, rather than constructing,

analyzing, synthesizing, or evaluating knowledge" (p. 68). Such traditional teaching continues to promote an individualistic, competitive environment. When we know that active learning (more common in elementary, secondary, some post-secondary and adult education) promotes learning through the active participation of the learner, it is curious why it is not more widely used in undergraduate classes. Smith (2004, p. 31) indicated that "because employing this emerging knowledge challenges the historic structure of the universities, we ignore it," and Nelson (1999) went so far as to say that "this raises the question of whether it has already become immoral to teach without extensive use of active learning techniques that so enhance performance" (p. 172).

Clearly, using a wide variety of teaching strategies in the classroom increases student buy-in and learning (Adler, 1982; Fowler, 2003; Russell, Hendricson, & Herbert, 1984; Terenzini & Pascarella, 1994; Wlodkowski, 2003; Zull, 2002). Chickering and Gamson's popular and widely-cited *Seven Principles of Good Practice* (1987) included encouraging cooperation among students, making learning more active, and respecting diverse talents and ways of learning. Three of their seven principles of good practice are directly addressed by using active learning and, not surprisingly, active learning at the post-secondary has received increasing attention in the past 15 years. College websites often dedicate space to active learning and suggestions on how to use active learning in university classes.

Poindexter (2003) did a basic analysis of ERIC articles related to "higher education" and "active learning" to measure the adoption rate of active learning in higher education. Although counting articles may not be a definitive

assessment of interest and/or implementation, it is one way to assess the current state. Overall, there has been a steady increase in articles related to active learning. Although the growth in articles specific to active learning has been slight compared to other instructional innovations such as internet use and technology integration, there has also been an increase in the number of articles related to collaborative and cooperative learning—additional forms of active learning. Active learning is definitely finding its way into undergraduate classes—or at least into the research, literature, and stated desirability.

The characteristics of the innovation have an impact on the success of its implementation (Rogers, 1983; Sanson-Fisher, 2004). For an innovation to take hold and become integrated into practice, it needs to be seen as beneficial and manageable. The following section explores possible barriers to curricular innovation, driving forces to curricular innovation, and the attributes of active learning that may effect its implementation.

Barriers to Curricular Innovation

Bonwell and Eison (1991), in their oft-cited article *Active Learning: Creating Excitement in the Classroom*, indicated that curricular change in particular is often limited by the powerful influence of educational tradition, faculty self-perceptions and self-definition of roles, the discomfort and anxiety that change creates, and the limited incentives for faculty to change. Other potential restraining forces include returning to a place of being a learner and personal discomfort, the time and initiative required to make changes in one's signature pedagogy, student resistance to changes in instructional approaches,

community norms and values, rewards for research over teaching, and the perception of teaching of general (i.e., teaching *loads*).

Barriers identified by nursing instructors moving to teaching online courses were increased workload; the altered role of the instructors; a lack of technical and administrative support; a concern that the quality of the course would be reduced; and the negative attitudes of other faculty members about the change (Barker, 2003). These barriers were not dissimilar to those found by Shell (2001) when she conducted a study of barriers to increased critical thinking among nursing students through instructors' increased use of active learning. She found that the greatest barrier perceived by respondents to the survey was the students' resistance to the change. Other barriers were time constraints and inability to cover the necessary content. Barriers to implementing active learning also include faculty resistance, class time availability, class size, inadequate materials and equipment, and lack of teacher preparation time (Bonwell & Eison, 1991). Michael (2007) identified three main categories of barriers in his study: student characteristics or attributes, teacher characteristics or problems that directly affect teachers, and pedagogical issues that affect student learning.

Driving Forces for Curricular Innovation

Driving forces are conditions that encourage a change. In a study conducted on changing how science is taught in higher education, action research and incremental change, connection and interaction with others, and administrative "presence" were all found to be supportive (Sunal, Hodges, Sunal, & Whitaker, 2001). Bok (2003) recommended many driving forces and indicated that each of

the incentives may be necessary, but not independently sufficient, to drive a change in teaching behaviour:

> Every university has taken some of these steps, but very few have taken all, or even nearly all, of them. Yet it is the cumulative effect of many separate measures that can change the incentive structure and gradually alter the relative weight given to research and teaching. (p. 184)

Bok's recommended driving forces included: rewarding good teaching with prizes and awards, publishing survey results of student experiences, emphasizing teaching in all appointments and promotions, assessing student learning more rigorously, and having all courses and sections evaluated by students. Bok also suggested that government agencies and foundations make more money available for research and experimentation on ways to improve teaching effectiveness, that "opportunities [are provided] for instructors to receive assistance to improve their teaching" (p. 183), and that small grants are offered to faculty members who wish to try new methods of instruction with the stipulation that project are carefully evaluated and the results made public.

Michael (2007) suggested that faculty development may not be sufficient to overcome the barriers identified in his study. He indicated that teaching must become a more public enterprise and that was important "to treat teaching like a truly scholarly activity" (p. 45). Driving forces identified by Bonwell and Eison (1991) were: highlighting the instructional importance of the innovation in newsletters and publications, offering workshops that model the strategies they are focused on, and including plans for follow-up and support in workshops. Michael (2007) and Bonwell and Eison (1991) did not recommend on-site

instructional coaching or supportive communities of practice. However, they indicated that administrators should recognize and reward instructional innovation, and provide adequate resources, supportive policy and strategic administrative action plans. Bonwell and Eison (1991) also suggested that faculty start small with strategies that are comfortable and low-risk. Faculty could choose activities that are short, structured, and carefully planned, and begin with "subject matter that is neither too abstract nor too controversial, and familiar to both the faculty member and the students" (p. 4).

Active Learning as a "Good Idea"

It is more difficult to implement an innovation that is perceived to be too complex or too different from other methods currently being used than it is to implement an innovation that is simple and a "fit" with the existing paradigm (Rogers, 1983, 1995). Individuals implementing the innovation are more likely to do so if they perceive the innovation to be worthwhile and "better" than what is currently in place. If current methods are "working" and the results are positive, individuals are less likely to implement the innovation than if they feel that current methods are not working.

The following sections examine active learning in terms of its relative advantage over other methods, its trial-ability, how compatible it is with the current strategies being used, how easy it is to observe the effects of active learning, and its complexity.

The Advantages of Active Learning

There is compelling evidence in a growing body of research that indicates that there are clear advantages to incorporating active learning. Prince (2004) in

his meta-review of the research on active learning found support for all forms of active learning examined. Some of the findings, such as the benefits of student engagement, are not controversial, although the magnitude of improvements resulting from active engagement methods may be surprising.

Although the traditional lecture is not ineffective, active involvement in the learning process is beneficial to students in a variety of ways (Terenzini & Pascarella, 1994, Mills, 2003) including improving understanding and learning (Dunne & Brooks, 2004; Kanthan & Mills, 2005; Saxena & Mills, in press; Svinicki, 2004); promoting concept formation (Schwartz, 1999); as a way to discover misconceptions (Svinicki, 2004); increasing student motivation (Bransford, Brown & Cocking, 2000; Kanthan & Mills, 2005, 2005b, 2007); and fostering critical thinking, attitudes, values, and communication and cooperation skills (Bligh, 2000b; Saxena & Mills, in press). Using active learning reduces the amount of content addressed in a given period thereby increasing retention (Russell, Hendricson, & Herbert, 1984). Active learning addresses a wider range of objectives over and above the transfer of content from instructor to student. "Without discussion, they may be memorizing machines, able to pass quizzes or examinations. But probe their minds and you will find what they know by memory they do not understand" (Adler, 1982, p. 32). Studies consistently indicated that active learning increased student participation, and learning and participation are inseparable (Wlodkowski (2003). It is only in the actual doing that one discovers if in fact one *can* (Zull, 2002). Through active learning, students actually “do.” In response to findings such as these, to achieve a

standard of teaching excellence it may be necessary to incorporate active learning strategies (Fowler, 2003).

Trial-ability of Active Learning

It is important that initial trials with the innovation be positive (Tichy, 2002). Smith, Sheppard, Johnson, and Johnson (2005) indicated that forms of active learning such as cooperative learning and problem-based learning may not be widely practiced because they are difficult to design, integrate and manage, and faculty may not have experienced them as students. However, some forms of active learning such as short discussions with a partner can be easily incorporated into traditional lectures. McManus (2005) explained that he began changing his teaching in small ways by adding reflective comments on his lecture notes. He then made incremental adjustments to his teaching based on these reflections. Over time he gradually moved from small changes in his lectures, like including a weekly problem and adjusting course content, to structuring the class around cooperative learning. Small, comfortable additions to existing teaching methods were also recommended by Bonwell and Eison (1991). When there are small successes at the outset, then the implementing the innovation may seem more manageable.

Compatibility of Active Learning with other Methods

By making gradual and incremental changes, active learning can be compatible with currently-used instructional methods (Bonwell & Eison, 1991; McManus, 2005). Some elements can be easily incorporated into the traditional lecture format. However, if there is concern about *covering the content* (Nelson, 2001), then time not spent transmitting content to students may be interpreted

as a waste of time, and not recognized as *teaching* by instructors or students which may also raise student anxiety. Students' involvement with instruction is often driven by the need to *pass the exam* (Biggs, 1999).

Observing the Effects of Active Learning

Research indicates that active learning has "attracted strong advocates among faculty looking for alternatives to traditional teaching methods, while skeptical faculty regard active learning as another in a long line of educational fads"(Prince, 2004, p. 223). Staff and student responses have an impact on the implementation of active learning. Are the advantages of using active learning strong enough given that traditional university lectures are familiar and comfortable to both faculty and students? More rigorous research that provides an irrefutable rationale may guide faculty towards active learning in their teaching. Further, faculty may be reassured in their risk-taking if more research supports the inclusion of active learning.

Students are not always pleased about active learning or other innovative methods being incorporated in their university classes. In her study of the implementation of new teaching strategies in an undergraduate nursing program, Shell (2001) found that students were sometimes resistant to instructional changes which was especially true when the change demanded more student participation than the traditional lecture (Panitz, 2003). Anything other than lecture may not be seen as serious teaching (Panitz, 2003) and may hinder the involvement of students in their own learning as well as discouraging faculty in incorporating active learning.

The Complexity of Active Learning

The more complex an innovation is perceived to be, the less likely adoption will occur (Rogers, 1995). Active learning may appear complex because so many dimensions or facets are associated with this approach. There are a wide variety of strategies and approaches that can be named as active learning and this may contribute to its perceived complexity (Prince, 2004). Schwartz (2004) indicated that too many choices and too many decisions can be intimidating. Poindexter (2003) hypothesized that active learning may be too different from more traditional forms of instruction to be readily adopted, but that the principles of active learning may be integrated implicitly. Some forms of active learning, such as cooperative learning and problem-based learning, may not be widely practiced because of their complexity (Smith et al., 2005). Implementation may be perceived to be difficult by faculty who lack familiarity with active learning and support as they change their instructional practices.

This section examined the innovation of active learning in terms of the apparent advantage of active learning as an innovation, and its trial-ability, compatibility, observability and complexity (Figure 2.3.).

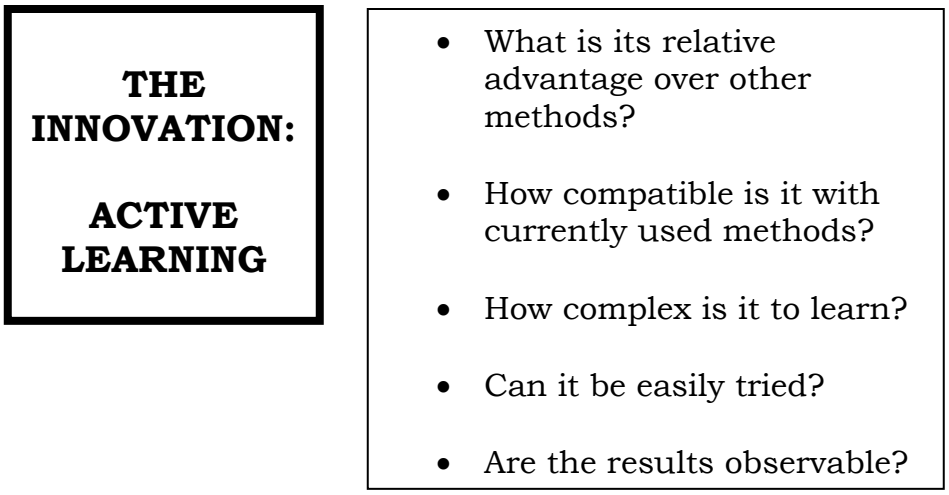

Figure 2.3. Active Learning as an innovation (after Rogers, 1983).

The following section examines the context in which the innovation is being implemented.

"The Context"—The University

This section will explore three aspects of the university's context that may impact the integration of active learning in undergraduate classes: (1) the *societal context* including the history of the university, scholarship in the university setting, and the university in the market place; (2) the *organizational context* that includes policy regarding teaching, how rewards are distributed and for what they are distributed, and faculty development; and (3) the *interpersonal context* and influence of peers and students regarding teaching in general and active learning in particular.

Societal Context

The university is affected by current conditions as well as by its foundational history. This section explores the contextual history, "scholarship"

as defined by Ernest Boyer (1990), and the impact of the marketplace on the university.

History of the University

Autonomy to pursue knowledge free from outside secular or governmental influences, peer review, and the relationship between teaching and research may have an impact on the implementation of curricular innovations. Today's universities are rooted in the Prussian invention of Wilhelm von Humboldt. Restructured the initially-monastic institutions to provide for free inquiry separate from church or state around the turn of the 19th century, "colleagues, presumed to be well-informed and driven by the quest for knowledge (rather than by Church authorities or political leaders), were empowered to regulate each other's intellectual activities" (Greenwood & Levin, 2000, p. 87). Peer review replaced review and control by the church or state.

In addition, von Humboldt's university related research and teaching. In 1852, Henry Newman (Thelin, 2004) indicated that the university was a place of teaching universal knowledge which implied that the main objective of the university was the diffusion and extension of knowledge rather than its advancement. If indeed, the main purpose of the university was the extension of knowledge, there would be no need to involve students.

Scholarship in the University Setting

Scholarship Reconsidered: Priorities of the Professoriate, written by Ernest Boyer (1990) the then-president of the Carnegie foundation, was published by The Carnegie Foundation for the Advancement of Teaching. This thin document set out a brief history of the university and recommended that the

scholarships of teaching, discovery, integration, and application be equally valued. Boyer's writing spread through the North American academic community through the 1990s. The amount of literature dedicated to the topic increased and many North American universities heeded Boyer's ideas in some form or another. Teaching and learning centers were established and Boyer's ideas were used as a basis for revising mission statements as well as directing faculty development initiatives, and decision-making about promotion and tenure. The University of Saskatchewan was no exception. To improve the quality of instruction, as stated in the *Mission Statement of the University of Saskatchewan* (1993) and *A Framework for Planning at the University of Saskatchewan* (1998), the University of Saskatchewan established the Gwenna Moss Teaching and Learning Centre in 2001.

Boyer's model of scholarship. In addition to defining, or redefining scholarship in the university setting, Boyer's model of scholarship offered a way to restore balance in the teaching/research dilemma by linking good teaching and research. According to Boyer (1990) there was a shift in emphasis from teaching to service to the current emphasis on research. Boyer (1990) asserted that there are basically four aspects of the professor's role: discovery, integration, application, and teaching. Ideally, these would be individually dynamic while informing one another. However research, teaching, and service do not overlap as much as might be hoped (Miller & Anderson, 2002) nor do teaching and research mutually reinforce each other (Marsh & Hattie, 2002). A closer examination of each of these categories will help to show both the impact on the

decisions faculty members make about how they spend their time and the impact on curricular innovation.

The scholarship of discovery, the emphasis in today's university community, is research and investigation. In addition to peer reviewed articles, the scholarship of discovery is evidenced in producing textbooks, contributing to popular writing, writing software programs, producing television programs, developing new courses, or making curricular innovations. Apart from discipline-specific offerings, faculty development in this area includes writing workshops and assistance in course development, round table discussions, and support meetings to share progress and tips.

The scholarship of integration validates the importance of synthesizing, giving meaning to isolated facts, putting the facts into perspective and a larger context, and doing a critical analysis. Boyer (1990) indicated that integration can also be interdisciplinary, moving across academic departments, and that new knowledge without the analysis is less than it can be. There is a role for those who can integrate, synthesize, and connect knowledge. Popular writing, journal articles, books, textbooks, conference presentations are all forums for sharing the scholarship of integration as well as areas for development.

Connecting information to real problems that exist in the community and the practical application of knowledge is the scholarship of application. Service is one of its aspects but "to be considered scholarship, service activities [of application] must be tied directly to one's special field of knowledge and relate to and flow directly out of this professional activity" (Boyer, 1990, p. 22). In this aspect of scholarship, theory and practice interact and inform one another.

Evidence of the scholarship of application is manifested through consultations, policy analysis, program evaluation, and providing technical assistance. Faculty might welcome development that focuses on the processes of consulting, analysis, evaluation, and collegial cooperation and collaboration.

Teaching, which encompasses the other three elements and may therefore be the highest form of scholarship, is about sharing the knowledge gained through the other forms of scholarship as well as getting new ideas and learning from students to inform further research. For teaching to be "scholarly," the teacher must be knowledgeable, current, and well-informed in his or her area. Like the *Commission of Inquiry on Canadian University Education* (Smith, 1991), Boyer (1990) made the point that "inspired teaching keeps the flame of scholarship alive" (p. 24). Development in this area may include on-site assistance and modeling of various teaching methods in addition to workshops on questioning, evaluation, instructional methods, management, planning, and climate.

Tensions of Scholarship

A 1986 survey of Canadian faculty indicated that faculty members realized that “in decisions regarding tenure, teaching receives too little weight and scholarly activity too much” while at the same time “almost 9 out 10 [faculty members]...indicated that being a good teacher was important to them personally, and that they accepted the obligation to teach well” (Smith, 1991, p. 38). However, “less than a quarter of faculty read articles or books on teaching, less than a fifth attend workshops or seminars on teaching, and less than 10% asked fellow faculty to observe their teaching” (Olsen & Simmons, 1994, p. 249).

There seemed to be a tension between stated values about the importance of teaching and actions taken to address that importance (Bruhn, Zajac, Al-Kazemi, & Prescott, 2002; Sandy, Meyer, Goodnough, & Rogers, 2000; Shea & Knoedler, 1994; Shell, 2001).

In 1991, The Association of Universities and Colleges of Canada (AUCC) commissioned a report on the current state of Canadian universities (Smith, 1991). The Commission was "deeply concerned that a trend from the United States has been imported into Canada, namely a situation where the quantity of research publications is more important to the careers of university professors than is the excellence of their teaching" (Smith, p. 31). Canadians believed that universities are "institutions of teaching and learning wherein research is performed and wherein the teaching is done by persons who are engaged in scholarly activities," said Smith (p. 31). The Commission was concerned with the unconscious message of witnesses who spoke repeatedly of research "opportunities" and teaching "loads." "Publish or perish" was already more of a reality than one might have liked to admit.

So what drives today's institution—research or teaching—or both? While it may be stated in policy documents, goals, and mission statements that research and teaching are equal, the vernacular suggests differently. There would most likely be little argument that the current emphasis is on research and publication. Smith (1991) indicated that:

> In general it seems fair to say that, while a truly terrible teacher, with average research ability, will not be promoted, the same terrible teacher, with excellent research publications to his or her credit, will be. On the

> other hand, the best teacher in the world, given a poor or non-existent research record has little or no chance of promotion at most research-intensive universities. (p. 42)

Overall, "few knowledgeable observers would deny that research universities rarely insist on the best possible teaching or make a sustained and systematic effort to improve their educational programs" (Bok, 2003, p. 160). Although there is substantial pressure on academics to secure grants and research funding, in the past number of years, the importance of good teaching in the university setting has been highlighted by citizens, parents, students, and academics interested in teaching.

Balancing acts. Although research and teaching are often in competition time, rewards, and resources, some colleges are able to balance high goals in both areas. Austin and Chang (1995) discovered that, at colleges scoring high in both the dimensions of teaching and research, "faculty [at high-high institutions] apparently use their interest and engagement in research to enhance the undergraduate teaching-learning process", and that "the major limiting factors, it would seem, [for why all colleges are not this way] are institutional will, policy, and tradition" (p. 49). Specifically, they found that at these colleges resources invested in students almost doubled those spent elsewhere. Students, from higher socioeconomic classes, had higher Standard Achievement Test (SAT) scores but were less competitive academically, were more "radical," and there was greater student/faculty contact time; and curriculum and faculty were innovative. Faculty members at these colleges were more likely to team-teach and interact across disciplines, place value on teaching the classics of Western civilization,

teach interdisciplinary and general education courses, and have more flexible curricular requirements. They also tended to incorporate information relating to race and gender, personalize and individualize, give essay exams over multiple choice exams and written evaluations over grades, require students to submit multiple drafts of writing, and hold freshman seminars and senior projects.

Austin and Chang (1995) provided concrete examples of how both research and teaching can be high on a college's or university's agenda. Smaller colleges may balance research and teaching by rewarding good teaching. Good teaching may be more easily defined, spotted, and rewarded in these settings (Smith, 1991).

Good teaching. Current research on learning that indicates that using a wide variety of teaching strategies in the classroom increases student buy-in and learning (Adler, 1982; Fowler, 2003; Russell, Hendricson, & Herbert, 1984; Terenzini & Pascarella, 1994; Wlodkowski, 2003; Zull, 2002). There is a fair degree of uniformity on what constitutes "good teaching" in university classrooms that might influence the implementation of curricular innovations. The findings of Austin and Chang (1995) were similar to the seven principles of good practice offered by Chickering and Gamson (1987). The Seven Principles of Good Practice of Chickering and Gamson (1987) are: (1) encourage student--faculty contact, (2) encourage cooperation among students, (3) make learning more active, (4) give prompt feedback, (5) emphasize time on task, (6) communicate high expectations; and (7) respect diverse talents and ways of learning. These principles have been widely adopted in North American

universities, including the Gwenna Moss Centre at the University of Saskatchewan.

In the Marketplace

Students, and in some cases their parents, are shopping for a quality education. Instruction may be one variable in the competition for students (Poindexter, 2003). By incorporating active learning, universities might better meet the learning needs of the increasingly diverse student body attending today's universities; increased student satisfaction is vital for student recruitment. Like many other North American universities, at the University of Saskatchewan the emphasis on teaching is evidenced broadly in the *Mission Statement*, *A Framework for Planning*, and the newly-released foundational document on teaching and learning. In addition, exemplary teaching awards have increased, the Gwenna Moss Teaching and Learning Center has been established, and regular faculty development sessions on teaching are offered.

As indicated in *Framework for Student Evaluation of Teaching at the University of Saskatchewan* (The University of Saskatchewan, 2004), students want accessibility to summaries of student evaluations of instructors to help inform their choice of classes—and universities. When students are apprised of the quality of the teaching at a university, they are able to make educational choices based on the quality of instruction they might receive. By publishing rankings of innovative instruction, the profile and importance of quality instruction in primarily research-driven institutions may be raised. In Canada, *McLean's Magazine* publishes university rankings that might impact the perceptions of students and their parents about the quality of Canadian

universities. Universities might want to raise their ranking by improving instruction.

This section provided an overview of the literature regarding contextual influences of university traditions and history, the university in the marketplace, and the influence of traditions and commerce on "good teaching" and scholarship. The next section examines the context in which faculty operate in their immediate surroundings on a day-to-day basis and the possible influences of organizational policy, rewards, and faculty development on curricular innovation.

Organizational Context

The context, or organizational climate, may have an effect on the implementation of an innovation. Policy has the power to create organizational climates that prevent, discourage, are neutral, encourage, or require curricular innovation (Kirkpatrick, 1994). Policy also structures rewards, faculty development, and resource allotments and allocations. Organizational policy, therefore, has the power to influence the context and, in turn, influence an individual's choices regarding curricular innovation. This section examines policy, rewards, and faculty development related to the integration of active learning in undergraduate classes.

Policy Sets Direction and Shapes Experience

Jenkins (as cited in Howlett & Ramesh, 2003) defined policy as "a set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within specified situation where those decisions should, in principle, be within the power of those actors to

achieve" (p. 6). Organizational policy-making frames problems and addresses needs. In addition to being a vehicle for resolving issues, influencing organizations, distributing resources, and allocating values (Malen, 2000), policy directs organizational action. Policy is "a major guideline for future discretionary action" and "is generalized, philosophically based, and implies an intention and pattern for taking action" (Stringham, as cited in Caldwell & Tymko, 1990, p. 19). Good policy can foster positive climate and reflect cooperatively-developed community expectations (Caldwell & Tymko, 1990). Darling-Hammond (1998) indicated that "policymakers who want teachers to succeed at new kinds of teaching must understand that the process of change requires time and opportunities for teachers to reconstruct their practice through intensive study and experimentation" (p. 654).

Policy aligns the reward structure of the organization (Miller & Anderson, 2002). Crucial encouragement lies in the attitudes conveyed throughout the organization by formal and informal leaders (Massey, Wilger & Colbeck, 1994; Probst, 2003; Wenger, 1998). Modeling positive attitudes, optimizing participation, setting clear direction, and providing the opportunity for a collaborative process for the development and implementation of the policy can optimize the potential for the implementation of policy (Darling-Hammond, 1998). Policy that directs action and effectively encourages participation provides clear direction and creates a supportive climate for professional growth and development. Policy that supports change creates extensive collaborative learning opportunities, allows for engagement in the development of the changes, and recognizes the need for simultaneous change throughout the organization to

bring all aspects into alignment. Effective policy development acknowledges external standards and the autonomy of those involved in the change (Darling-Hammond, 1998).

Like policy, reification (Wenger, 1998) shapes experience. Reification is the process by which understanding is given a form that can then be used to focus common understandings and direction as well as providing a focus for negotiation and a tool for action. It is the "process of giving form to our experience by producing objects that congeal this experience into 'thingness'" (Wenger, 1998, p. 58); "reification shapes our experience" (Wenger, 1998, p. 59). It could be said that the negotiation of community beliefs to develop policy is a process of reification which in turn supports desired change. Darling-Hammond (1998) indicated that "neither a heavy-handed view of top-down reform nor a romantic vision of bottom-up change is plausible" and "that policy makers need to understand that policy is not so much integrated as it is reinvented at each level of the system" (p. 646). The reinvention and reification of policy has the potential to be a dynamic way to activate policy.

Rewards Encourage Action

Although rewards for behaviour tend to increase the behaviour initially, rewards reduce internal motivation and creativity (Kohn, 1987) offering short term gain with long term loss. However, incentives and rewards are generally considered to be motivating (Poindexter, 2003; Cottrell, 2001). Personal feelings of satisfaction, pride, achievement, and happiness are intrinsic rewards; and praise, increased freedom and empowerment, and pay increases are extrinsic rewards (Kirkpatrick, 1994). However, if the organization offers rewards that do

not reinforce stated objectives, values, or goals, members of the organization can feel torn in the actions they take (Miller & Anderson, 2002; Probst, 2003; Wenger, 1998).

The recognition and support of the intrinsic motivation of the professoriate is delicate and rich. Individual passions need to be respected, recognized, celebrated, and supported. Scholarly activity that goes unrecognized, is maligned by colleagues, or is not supported by administrators is demoralizing for faculty. Collegial and administrative support is critical (Larson, 2002; Probst, 2003; Wlodkowski, 2003). Organizational rewards, and recognition as a kind of reward, impact how faculty members choose to spend their time. For example, faculty perspectives regarding faculty development on active learning are, at least in part, determined by the value placed on these various components by the organization (Miller & Anderson, 2002). Boyer (1990) pointed out that, over the past number of years, publications and research have become the primary ways for faculty to advance in the university system. His model of scholarship offered more areas in which faculty could be recognized for their work. To only recognize and reward one part of the professorial role does a great disservice to the entire institution and may also devalue the wide range of activities in which faculty engage.

Jensen (2000) pointed out that "we pretend that anything we do not understand—anything that cannot be measured, quantified and controlled—does not exist" (p. 6). It may be that measuring teacher effectiveness is more complex and difficult than tallying peer reviewed articles. Bok (2003) indicated that “one reason that so many professors have emphasized research over teaching is that

research results can be widely read in the outside world, bringing prizes, fame, consulting opportunities, job offers, and many other rewards not available to the successful teacher, whose talents are seldom known beyond the campus" (p. 93). Teaching may be increasingly accessed beyond the campus with on-line courses and the internet; one's teaching may have a wide and more far-ranging audience as it is more accessible to a larger number of students.

The emphasis on only one way of being recognized and gaining status in the field could limit potential and enthusiasm. For example, The University of Saskatchewan (2002) offers seven categories under which a candidate for tenure or promotion is to be evaluated, and because there is the potential for evaluation and promotion in these areas, these areas are also appropriate and worthwhile to consider for faculty development by faculty. According to Miller and Anderson (2002), faculty members get confused when the stated values are not rewarded by the institution, and may still feel that the way to fully participate and benefit in the academic system is through research and publications.

Faculty Development Supports Action

Policy directs action. Rewards encourage action. Faculty development supports action and can further policy and reification. Policy can create space for engaging in faculty development that is meaningful and relevant (Miller & Anderson, 2002), and supports the implementation of policy. Undoubtedly, faculty development is important for creating vitality and enthusiasm, building a sense of positive community and collegiality, and keeping faculty current. Faculty development is most beneficial when it is timely, directly relevant to individual needs, easily accessed, and supported by organizational leaders (Feist, 2003;

Sandy, Meyer, Goodnough & Rogers, 2000). When faculty members can see that faculty development meets their needs in a timely fashion they are more likely to participate (Pendleton, 2002). In the academic community, "meaningful" faculty development may be highly individualistic, and, because of discipline specialization, role diversity and specificity, career and life stages, and organizational requirements, faculty development offerings may not meet individual or collective needs at any one particular time (Darling-Hammond, 1998; Massy, Wilger & Colbeck, 1994; Pendleton, 2002).

The scholarship of teaching (Boyer, 1990) is a component of the professor's role that is common to most faculty members, cuts across disciplines, and is the juncture where the other scholarships integrate. Given the diverse and changing needs of faculty members, it may be that meaningful faculty development targets processes like research, report writing, consulting, teaching, evaluating, or proposal writing. These activities may be more appropriate to highlight at the campus level than specialized content areas. The interpersonal components of faculty development include the development of team and the sense of community, both of which will be explored in the following section.

Interpersonal Context

Interpersonal relationships have an effect on the overall context. This section considers the influence of peers and students on faculty as it pertains to curricular decision-making.

The Influence of Peers and Community

Individuals shape the community they are a part of and are shaped by that same community; such delicate subtle shaping occurs over time through shared

interests, experiences, and interactions. Although tenured faculty are fairly autonomous and may not always have many shared interests with colleagues, they are not immune to the influence of the context or "community" in which they participate. Not being discipline-specific, teaching is one area that professors have in common. As such, teaching has the potential to be a shared interest around which “communities of practice” can form.

Defining communities of practice. “Communities of practice” are groups that develop over time through sharing practices from which they both contribute to and learn from and, in turn, are shaped by these practices as is the community of which they are a part (Wenger, 1998). Individuals function as members of many communities of practice at any given time and participate on many different levels in these communities (Wenger, 1998). In some cases "communities of practice" form naturally on some levels and not so naturally on others. For example, faculty development activities are chances for community, and communities of practice, to develop (Feist, 2003; Massey, Wilger & Colbeck, 1994; Wenger, 1998). It is helpful to understand how and what people engage in communities of practice. Wenger (1998) offers three distinct modes of belonging to community: engagement, imagination, and alignment.

Engagement is the active involvement in mutual processes of negotiating meaning. By that involvement, individuals both shape and are shaped through on-going negotiation. *Imagination* involves creating images of the world and seeing connections through time and space by extrapolating from individual and collective experiences. This shared potential or vision is a powerful uniting force. *Alignment* occurs through coordinating energy and activities to fit within broader

structures and contribute to a broader experience; individuals become part of something greater by playing a part in the grander scheme. Individual power is amplified by this alignment, but it can also be disempowering or blinding.

Support with communities of practice. There are several ways to support communities of practice and faculty development that supports instructional innovation. Wenger, McDermott, and Snyder (2002) provided several principles to guide, with a light hand, the "natural, spontaneous, and self-directed" (p. 51) development of communities of practice. These authors suggested that it is important to build on existing networks as much as possible and to value the unique perspectives of insiders and outsiders which can combine synergistically, and to develop both public and private community spaces that allow for different types of interactions. It is also important to invite individuals to participate at different levels, knowing that it is fine to participate at different levels at different times. The full value of a community might only become apparent over time, so it is important to focus on both the easily identified immediate value as well as subtle long term benefits.

To keep interest in the community high and the heart of the community pumping with regularity and strength it is best to combine familiarity and routine with excitement (Wenger, McDermott, and Snyder, 2002). Timely and meaningful faculty development opportunities which consider, not only individual faculty development needs, but the ways in which engagement in faculty development activities can contribute to the development of community and the overall vision of the institution at its various levels contribute to this community strength and vitality. For faculty members to become involved, they

must see tangible and immediate benefits (Feist, 2003; Wenger, 1998; Wlodkowski, 2003). Further, "if it is not clear how members benefit directly from participation, the community will not thrive because the members will not invest themselves in it" (Wenger, McDermott & Snyder, 2002, p. 17). Participation in faculty development may not be an organizational norm.

Barriers to communities of practice. There are barriers to getting involved in faculty development that focuses on improving student learning (Massy, Wilger & Colbeck, 1994; Miller & Anderson, 2002); the reasons for non-participation and a lack of enthusiasm are varied. Lack of participation may be due to role complexity or lack of meaning for individual faculty members. Professional and personal autonomy, and discipline specialization may be barriers. Shifting faculty demographics may also have implications for groups and alliances that form within the organization. Peer groups are shifting as faculty demographics change; Poindexter (2003) suggested that the baby boomer generation is being replaced by more adventuresome and relaxed “GenXers.” The isolation and fragmented communication among autonomous and specialized faculty members can be a barrier. Competition for resources, an emphasis on research, and conflicting messages given by the reward structures may also be barriers to involvement in faculty development.

Miller and Anderson (2002) found to “gain a better understanding of the persistent gap between what should exist with faculty work and reward, and what does exist” (p. 1), that the highly competitive nature of the promotion system is another complication to developing communities of practice. Increasingly groups

have been recognized and rewarded by receiving grants, a prestigious and highly recognized form of reward that may lead to individual advancements as well.

The challenge lies in helping faculty members understand that they can be members of several different communities of practice at the same time without losing the identity that comes from being a member of one group while becoming a member of another. To no lesser extent, there is the problem of how teaching is valued within the organization. Engaging faculty in faculty development might be important to the organizational health, but might not be perceived as meaningful and timely to individuals in a complex, multi-faceted situation, and the possible solutions are no less complex and multi-faceted.

In summary, peers can be supportive or non-supportive, inclusive or excluding depending on perceptions about competition, teaching, and allegiances. Peer communities of practice that develop through shared faculty development experiences may have the potential to support instructional innovation.

The Influence of Students

Student characteristics and needs are changing, but it may be that student expectations about instruction and what good teaching looks like are not. This section examines changing characteristics, student expectations, and resistance to active engagement that is in conflict with expectations.

Smith (2004, p. 30) indicated that students are "becoming more diverse in ethnic background, age, and participation patterns." According to Fowler (2003), the postmodern generation wants fun, power in their own hands, clear expectations and explanations, personal rapport with their instructors, honesty,

and uninhibited use of technology. Poindexter (2004) pointed out that the *Millennial Generation* (Howe & Strauss, 2000) has been coming into universities since 2000. These students are more self-confident and have strong collaborative and technology skills. The situation becomes complex when "post-modern" meets "modern" in the university classroom (Schon, 1983) with the difference in generations of faculty and students. Generally, university classes have a texture that is familiar and comfortable for both students and instructors, and there is tension when what a student expects does not occur.

Signature pedagogy and student expectations. "Signature pedagogies" are characteristic forms of teaching and learning that organize and prepare future practitioners for their professional work (Schulman, 2005). A signature pedagogy is "a set of assumptions about how best to impart a certain body of knowledge and know-how. It has an "implicit structure, a moral dimension that comprises a set of beliefs about professional attitudes, values, and dispositions" (Schulman, 2005, p. 55). Inextricably linked with a particular profession, it is the way of teaching that is distinctive to that profession as well as pervasive within the curriculum and across similar institutions as elements of instruction and socialization (Schulman, 2005). Medical students expect clinical rounds and law students expect case discussions. Traditional lectures and "signature pedagogies" of professional colleges provide consistency and routine to faculty and students.

It is not surprising, then, to find that students are not pleased if their expected routines are upset by active learning or other innovative teaching methods. For example, in her study of the implementation of new teaching

strategies in an undergraduate nursing program, Shell (2001) found that students were sometimes resistant to instructional changes—especially when the change demanded more active participation on their part. Indeed "students may feel that the lecture method is ‘easier' because they are passive during class while apparently receiving the necessary information... interactive classes are very intense" (Panitz, 2003, p. 56). Shulman (2005) indicated that high levels of engagement might make students visible and personally accountable which can be stressful for some. In addition, anything other than lecture might not be seen as serious teaching (Panitz, 2003) which might actually hinder the involvement of students in their own learning. It might also be off-putting to faculty when students resist the integration of more active forms of learning in their classes when they expect the signature pedagogy of their discipline.

This section examined the societal, organizational, and interpersonal contextual elements as outlined in Figure 2.4.

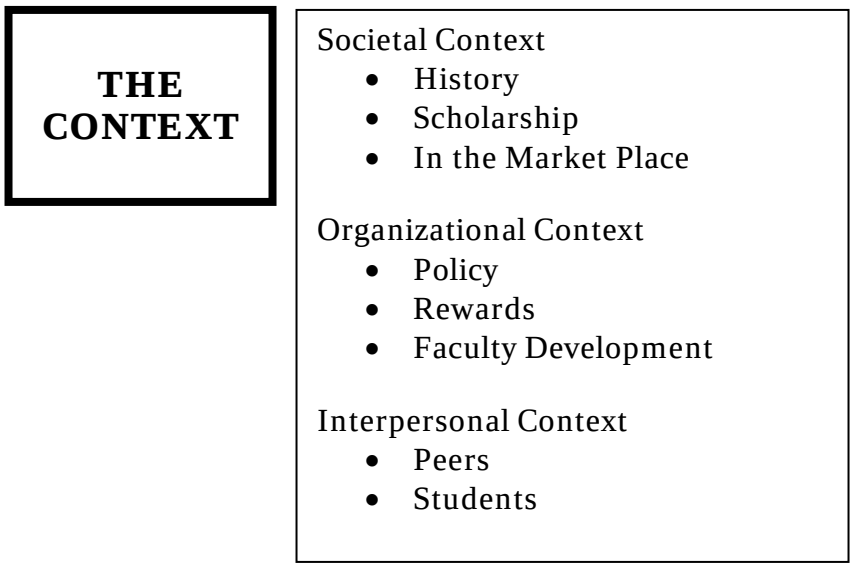

Figure 2. 4. Contextual elements.

The following section examines the individual in the context described in the previous section along with the various elements at play with the professoriate: roles, values and beliefs, career and life stages, professional goals, and resonance with active learning.

"The Person"—University Faculty

University faculty make curricular choices either by default—teaching how they were taught—or consciously by reflecting on student needs and adjusting to meet these needs. The complexity of professorial roles, career profiles, goals, life stages (Boyer, 1990), personal values and beliefs about teaching and instruction, and the resonance of instructional methods with all the previous aspects make for a complex dynamic. Although these are artificial constructs teased apart for ease of exploration for our purposes, they are noteworthy and might influence on curricular decision-making. In the following section each of these aspects will be examined separately.

Professorial Roles

The role of "professor" is actually several roles: discovery, integration, application, and teaching. These four aspects of the professor's role are, according to Boyer (1990), independently dynamic while informing each other. Even with faculty development, an aspect of academic life that might seem straightforward, the complex nature of the professorial role is reflected as the question is raised regarding which part of the professor's professional role is being developed at any particular time. Faculty development addresses personal, interpersonal, unit, and organizational needs and goals as well as addressing

individual disciplines and teaching. How does one decide how to spend one's time and resources when one's role has so many aspects?

Certainly the goals and policy of the organization impact how time is allocated, and what is rewarded often receives greater resource allocation. This complexity puts university faculty in the unique position of making choices about allocating their time. The role, or roles, that individuals identify with is the one into which they will put their energy. Personal and professional identity is connected to that with which individuals associate. Associating with being a "teacher" might be a hurdle that is subconsciously insurmountable for an individual who has as a first role his or her discipline. For example, those who went into medicine generally would have identified with "doctor/researcher" as their primary role with "teacher of medicine" perhaps being a secondary role.

Career Profiles and Goals

Faculty members might have different priorities and goals at different stages of their careers. They might also contribute expertise and experiences differently at different stages in their careers. Boyer (1990) indicated a "traditional" profile of 50% teaching and 50% research which might shift over time. Changing career profiles and goals might impact curricular innovation. As faculty recalibrate focus with shifting priorities, emphasis on research, teaching, service, and administration might change over the arc of a career. A new faculty member might contribute differently than a faculty member at more advanced career stage. The needs and aspirations of a new faculty member might also impact on risk-taking in curricular innovation.

Stages of Life

Career stages and life stages overlap. This section explores stages one travels through in life. In *The Stages of Life,* an essay in *Modern Man in Search of a Soul,* Jung (1933) indicated that "man" moves from the pre-problem stage of "childhood" to the awakening of psychic consciousness in adolescence caused by the introduction of problems that separate self from other creating the dualistic state of "youth" which extends from puberty to mid-life. During this time of "youth," one lives with the dualistic tension by trying to solve it using calculative thought (Shaw, 1988) and reason to figure things out, trying to solve problems, and finding the answers in ways that make sense in this scientific positivist culture. However, "the nearer we approach to the middle of life, and the better we have succeeded in entrenching ourselves in our personal standpoints and social positions, the more it appears as if we had discovered the right course and the right ideals and principals of behaviour" (Jung, 1933, p. 104). Around the age of thirty-five to forty there is the beginning of a significant shift in the human psyche in preparation for the next stage of life. This change is frequently heralded by depression, breakdowns, and questioning. Jung indicated that the next stage of life is, for some, a forced meditative state (Shaw, 1988) in which one, ideally, turns inward.

People tend to move outward into the world, to "accomplish," and to strive for the rewards promised by society in the first half of life. Once the hollowness of this striving is realized, however, there is a natural turn inward. The second half of one's life tends to be an inward focused time, a time to see the totality of the

world, and to contribute to the larger whole. Rewards might hold less appeal and have less impact during the second part of one's career.

Hypothetically then, a career might follow an overall arc of discovery and research followed by the application and dissemination of the findings through teaching and publications. This cycle is similar to that of the creative process. The creative process consists of four stages (Samuels & Samuels, 1975). The first stage is *preparation* which includes choosing a focus, doing background reading, and gathering information and data on a particular topic or issue. The second stage is *incubation*, a time of turning attention to other matters, letting the data that had been collected percolate in the subconscious while concentrating on other things that might appear to have nothing to do with the project initiated in Stage 1. *Illumination* is the third stage of the creative process. At this point, the direction of the process for the project takes definite form. While the incubation stage might look like nothing is happening on a project, during the illumination stage, a renewed activity becomes apparent. Stage four, *verification and revision*, is working out the details and creating the final product.

The stages offered by Leonard and Swap (1999) are: divergence, incubation and convergence. There needs to be a time for input, a time for doing something else and letting the brain do its work, and a time for everything to come together. Similar to a rock polisher, the mind takes the rough gems along with the grit, and tumbles them around while the *creator* is busy doing other things. Following a sufficiently long period of time where ideas just have to tumble around, when it is *time* (and this might be determined by a deadline of some sort), the polished gems come tumbling out. If the stages of Leonard and

Swap (1999) are applied to a professor's career, part of the career is focused on gathering information (research), which is then digested before applying and sharing what has been learned. Hypothetically speaking, the initial focus of a career might be on research while the later part of the career might have more of a focus on writing and teaching. Expectations and faculty development needs would then naturally change over time having an impact on meaningful and appropriate incentives and rewards.

The faculty member's role is multi-dimensional and teaching is but one aspect of that role. Without the same institutional currency, teaching requires additional time, commitment and energy, and is often seen as peripheral to research. A tremendous effort is required to make changes to instructional practices (Darling-Hammond, 2001), and there is a personal response to a change that closely impacts the daily life of the individual. Some faculty members take a scholarly approach to their teaching even though the organizational structure might not support those initiatives as much as it supports, and rewards, research (Cottrell, 2001).

Values and Beliefs

In *Communities of Practice*, Wenger (1998) related non-participative behaviour to identity when he indicated that "non-participation is...as much a source of identity as participation" (p.164). Individuals get identity as much from who they are not as they do from who they are. Because we are not *other*, we are who we are. In extension, what we choose to do and what we choose not to do makes non-participation a "defining constituent of participation" (Wenger, 1998,

p.168). What faculty members choose to *not* participate in defines what they do participate in.

Individuals who cross expert group boundaries might become marginalized in their original group. It is a similar phenomenon to a person switching teams, or sides, during a season of play. A professor might feel that his/her main role is that of "content expert" and researcher (things that are highly rewarded in the organization) rather than a teacher. To become more knowledgeable in the area of teaching might be construed that he/she has “switched teams.”

Being a "teacher" has not been highly regarded or rewarded organizationally (Miller & Anderson, 2002). As well as losing power, learning something new, and being put back in the position of "student," the enthusiastic faculty member who wants to be a more effective teacher might mean, to some, that they are putting energy into something that is already viewed with a degree of disdain. Oddly, this might in fact, make it more disdainful rather than making it more positive resulting in important implications for curricular innovation. For change to occur there must be resonance with an individual’s personal beliefs, attitudes, goals, and values (Gardner, 2004) about the innovation and its place in their cognitive structure.

With institutional emphasis on teaching as a component of scholarly work, it might be that more faculty will be faced with participating in an area they might well have viewed as "other." Moving into territory that might have been construed as foreign or unfamiliar might result in non-participative behaviour. Non-participative behaviour might be interpreted as boredom and

disengagement just as easily as it might be interpreted as exercising freedom and privacy. However non-participation is viewed, it is a defining component of self that has relevance for faculty development, teaching, and curricular innovation.

The Individual's Process of Change

In addition to personal life stages and career stages, in both the cognitive and affective domains, individuals also experience stages as they learn something new. The questions and concerns individuals have when making a change offer insight into the stage an individual is currently in intellectually.

Cognitive Stages

Gardner (2004, p. 211) offered that "most mind change is gradual, occurring over significant periods of time; that awareness of the mind change is often fleeting, and the mind change might occur prior to consciousness thereof." The Concerns Based Adoption Model (C-BAM), initiated by Fuller (1969), suggested an individual's stage in the implementation of an innovation can be gauged by the concerns they have about the innovation, perhaps even before they are consciously aware of their own stage (Stiles & Loucks-Horsley, 1998). The stages in C-BAM are (1) the awareness of potential, (2) information seeking, (3) personal concerns about impact on self, (4) concern with management issues, (5) consideration of the consequences of the change, (6) collaboration, and (7) a refocusing of attentions based on the knowledge and experience gained. The individual's needs and concerns are different at each stage. Correspondingly, faculty development needs and support are also different at each stage.

Affective Stages

Based on the work of Kubler-Ross (1969) and her observations of the process individuals go through as they come to terms with a terminal illness, Connor (1992) indicated that, in the affective domain, individuals experience a sequence of emotional responses to change. The process of coming to terms with a change consists of stages of feelings of stability, immobilizing shock, denial, anger, bargaining, depression, testing, and acceptance. The platitude “change is the only constant” offers little comfort in the face of change that has personal impact. A change can be abandoned at any point in these stages. Rogers (1983) also indicated that innovations might be rejected at any stage in the adoption process and it can also be discontinued due to dissatisfaction with the performance of the innovation or because a better idea comes along.

Psychic energy is required to change (Csikszentmihalyi, 2003). Routine and pattern-seeking help conserve psychic energy. Gardner (2004) indicated that “we develop strong views and perspectives that are resistant to change” (pp. 17-18). We have strong and early engravings that often guide current behaviours especially when we are faced with questions for which we are unprepared (Gardner, 2004).

Kekes (1988, p. 115) offered that "to know something about ourselves creates a presumption in favor of employing the knowledge" and that "self-knowledge is connected with action." In *The Examined Life*, Kekes (1988) stated that "we may or may not know what prompts us to act in a certain way. Reflection might lead to giving up mistaken beliefs, or to adopting new ones" (p.103). Personal reflection on practice, then, can lead to awareness, the

beginning of the change process, and is a potential tool for unfreezing personal equilibrium. Gardner (2004) indicated that, "in serving as one's own tutor, it is important to know as much as one can about one's own mind, one's own learning proclivities and quirks, and to seize on these finding the optimal 'pedagogy' and 'curriculum' for one's own idiosyncratic array of intelligences and stupidities" (p. 148). Observing one's current practice and noting a misalignment of the current state and the desired state can instigate a desire to make a change.

People try to avoid various unpleasant affective states such as anxiety, empathy, responsibility, fatigue/ennui, and uncertainty (Connor, 1992; Kagan, as cited in Frank, 1988). Hodges (2006) suggested that fear impacts pedagogical change. She highlighted three significant fears: loss, embarrassment, and failure. Faculty might fear losing content coverage and control as students become more active in their own learning, and loss aversion is more of a motivator than gain for many people (Kahneman & Tversky, 1984). Faculty might also fear embarrassment—looking silly or incompetent—as they learn to incorporate instructional practices that require navigating more complex human interactions. They might also fear judgments made by colleagues and students, and loss of respect. Faculty might also fear failure to convey concepts successfully, to resonate with students, and to be perceived as experts.

Readiness for Change

Some times individuals are more receptive to making changes in their practices and behaviours. Gardner (2004) indicated that "the leading mature scientists of a generation are the least likely to be able to accept a dramatic new line of explanation.... senior savants, trained in old ways of thinking, would have

to abandon deeply ingrained and dearly held notions" (p.117). When the time is right (Whyte, 1994), or the individuals are just beginning to work in a new domain (Gardner, 2004), the information is more readily accepted. Learning comes in many forms and gaining self-knowledge through learning might be disconcerting; however, discomfort can provide a compass, and inconsistencies in behaviour might startle an individual into a reflective process. Halberstam (1993) suggested that "most people don't lead their lives—they follow. They react rather than act [and need to] battle the comforts of inertia and overcome the forces of habit" (p. 201) to begin to change.

Change involves understanding where one is now and where one might want to go. A clear and accurate picture is important. Although self-deception might protect until the time is right, Bok (1983) suggested that keeping secrets from oneself, self-imposed ignorance, compartmentalization, self-deception, and psychic numbing might be protection from information overload. Self-deception might not address dissonance or discomfort but self-deception might be a safe guard from possible overwhelming fear or pain. Kekes (1988, p.115) indicated that "we are not indifferent to the facts we know about our psychological makeup: we approve or disapprove, regret or cherish, and are proud or ashamed of being in various ways." Kekes (1988) also indicated that "self-knowledge is difficult" (p. 119); we are not born with it, it cannot be taught, and we must achieve it ourselves.

Martin (1986) stated that it is often easier to be dishonest; it is easier to avoid the truth than to deal with it. Nyberg (1993), in *The Varnished Truth*, suggested that "given the distance between what we are and what we wish we

were, some amount of other-deception and self-deception is an essential requisite for carrying on...we might say that illusion is compassion's remedy for the disappointment of reality" (p. 88). What motivates behaviour is also important to consider. Smith (2001) indicated that an individual's behaviour is much different if it is motivated by wanting to be the best they can possibly be than being driven by not wanting to be seen as incompetent or inadequate.

Receptivity to Change

Rogers (1983) suggested that people adopt innovations at different times. Individuals who seek change voluntarily share certain characteristics (Rogers, 1983; Connor, 1992). Innovators start things, take risks, enjoy new experiences, and might be comparable to Connor's (1992) "resilient individual." An innovator might be a new faculty member or a tenured faculty member (Poindexter, 2003). Other faculty members often consider innovators as mavericks.

Early adopters are the first to pick up on new trends started by the innovators. If these early adopters are respected leaders in their fields, then the innovation has a greater chance of catching on. There is generally a lag time between the early adopters and the taking up of the innovation by early majority, the late majority, and finally the laggards. If an innovation is to spread, it is important to create a bridge for the transition from the early adopters to the early majority (Gladwell, 2000).

Change and the Creative Process

Innovators might possess similar qualities to creative individuals. Although it is commonly agreed that all people are creative, studies of highly creative individuals show consistent, common elements (Csikszentmihalyi, 1996).

Creative individuals have a great deal of physical energy, are both smart and naïve, have a combination of playfulness and discipline, and combine imagination and fantasy with a strong sense of reality. They also express both introvert and extrovert traits, can be remarkably humble and proud at the same time, escape rigid gender role stereotyping, can be thought of as rebellious and independent, are both passionate and objective about their work, and because they are open and sensitive, are often exposed to suffering and pain in addition to a great deal of enjoyment. Creativity and creative individuals are sometimes threatening to bastions of the status quo because they can be unusual and intense while they are pushing in new directions (Kuhn, 2000). Creative individuals might not be well-liked or valued in some cases, but are usually the first to initiate change well before the majority considers it. They might see possibilities before others. They might also recognize the discrepancy between the existing state and the desired state earlier than others.

Visions of "better" and small initial successes with the change are driving forces when one recognizes the discrepancy between where one is to where one wants to go. There has to be some idea of what could be better and how one might get there. Change is most likely to occur when a person is new to a situation and there is a need to feel more competent. The more a change is required or made in daily routinized behaviours, the greater the personal impact (Connor, 1992) and the greater the possible resistance to the change (Elliott, Kratochwill & Roach, 2003).

This section explored and sampled the various dimensions related to the individual in context as outlined in Figure 2.5 including those elements that

might contribute to the desire to change and how faculty know what to do and how to do it (Kirkpatrick, 1994).

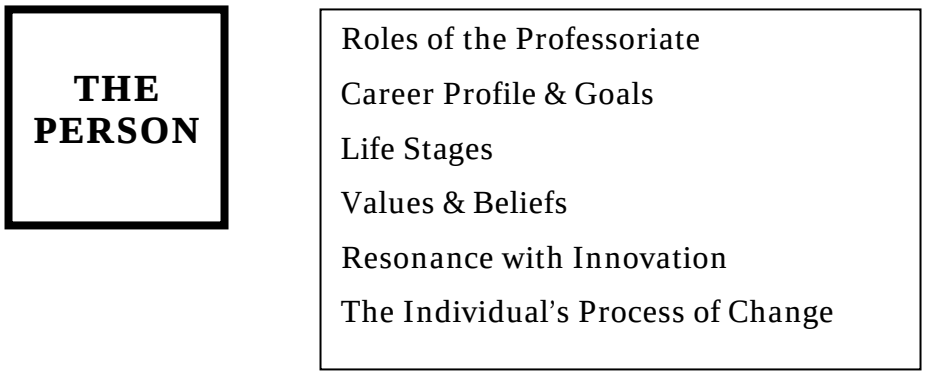

Figure 2.5. Aspects of the individual that might impact instructional change. A variety of influences are at work on an individual's desire to change their teaching behaviour and the ways in which different people would approach the undertaking of knowing what to do and how to do it.

Conceptual Framework—Summary of Chapter 2

The preceding sections of Chapter 2 have examined each of three main categories of the innovation, the context, and the person as well the change process. Kirkpatrick's conditions for change (1994) have also been considered. Is there a desire to change? Do individuals know what to do and how to do it? Is the climate right? Are there rewards for changing?

Individuals tend to make a change at specific times and for specific reasons (Connor, 1992; Lewin, 1951; Tichy, 2002), and these reasons can be categorized (Kirkpatrick, 1994; Lewin, 1951; Sergiovanni, 2000). The characteristics of the innovation influence whether or not the innovation will be picked up, by whom, and if it will spread (Rogers, 1986). Making changes to instructional practices is a highly charged personal task (Whitworth, Kimsey-

House & Sandahl, 1998; O'Neill, 2000), and the investment is personal. Being aware of the stages an individual goes through when integrating an innovation is important in recognizing and managing the possibility of disengaging from the change process and seeking stasis (Connor, 1992; Kubler-Ross, 1969; Lewin, 1951). There can be an abandonment of the innovation or change at any point in the stages. Attention to the concerns and questions of individuals as they are making a change offers insight into the stage an individual is currently experiencing (Fuller, 1969; Loucks-Horsley, 1996). Certain people are more likely than others to seek change voluntarily (Connor, 1992; Rogers, 1986), and if an innovation is to spread, it is important to create bridges such as faculty development and coaching for the transition from the early adopters to the early majority (Gladwell, 2000).

The University of Saskatchewan emphasizes the importance of teaching in the *Mission Statement*, *A Framework for Planning*, and the soon-to-be-released foundational document on teaching and learning. Increased numbers of awards have been given for exemplary teaching, and The Gwenna Moss Teaching and Learning Center offers faculty development and peer consultations to support teaching.

As the literature indicated, a tremendous effort is needed to change instructional practices because how a person teaches is a highly individualistic personal matter. Boyer (1991) indicated that teaching is only one facet of faculty members' professional responsibilities. The faculty member's role is multi-dimensional and teaching is often seen as a peripheral engagement to research. Nor does it have the same institutional currency. The literature also indicated

that curricular innovation requires additional time, commitment, and energy which might be especially true for individuals who do not have a background in teaching. In addition, students are not always enthusiastic about changes made to instruction. However, despite the barriers indicated in the literature, some faculty members incorporate active learning in their undergraduate classes. The innovation of active learning and the individuals taking on curricular innovation are influenced by the context of the organization, and are potentially subject to the natural stages of the change process. It has been necessary to tease these elements apart to explore the discrete pieces that might contribute to the collage of the problem. The purpose of this study was to bring to light the stories and perceptions of faculty members who are using active learning in their undergraduate classes. The conceptual framework (Figure 2.6) draws together the main elements elucidated in this chapter:

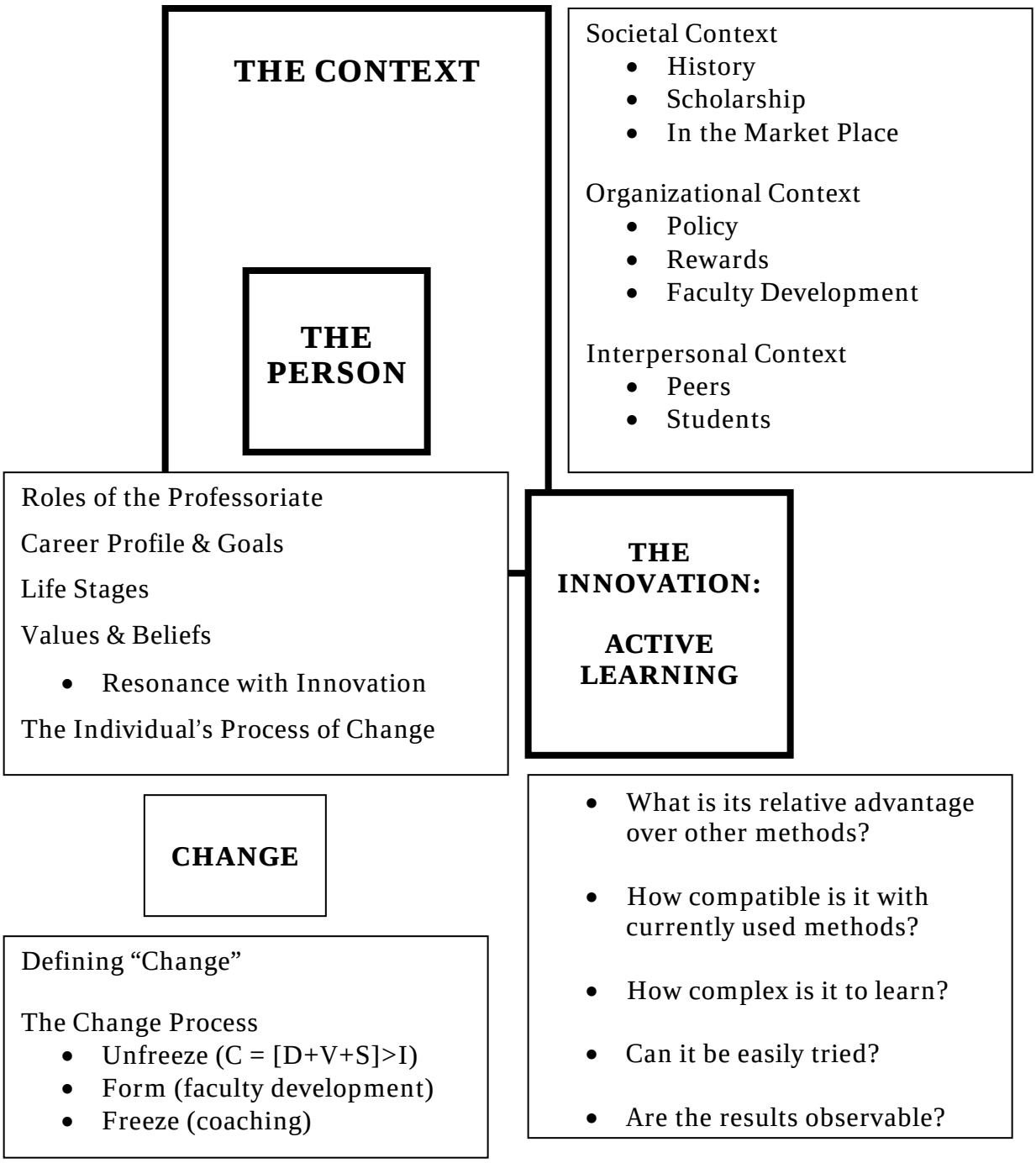

Figure 2.6. Conceptual framework of study.

Chapter 2 provided an overview of the relevant literature related to this study and a conceptual framework of the findings from the literature review.

From my review of the literature, I concluded that the context in which the innovation was to be implemented held the greatest sway over successful implementation. This is illustrated by the relative size of the box for *Context* in Figure 2.6. Proportionally, from my understanding of the literature I reviewed, it appeared that the qualities of the *Innovation* were a greater factor of influence on implementation than was the *Person*. As will be explained later in this document, this was contrary to the findings of this study.

Chapter 3 provides the methodology used to collect data. The data, which were gathered both in the storied whole and through individual recollections and discrete elements, were analyzed to illuminate driving and restraining forces and stories that speak to the experience of integrating active learning in undergraduate university classes. Chapter 4 reports the nature of data collected and provides insight into the research questions. Chapter 5 holds the literature up to the findings of this study, and offers discussion, implications and possible applications of the findings. The Epilogue returns to my larger research agenda and reflects on my doctoral program in general.

CHAPTER 3

METHODOLOGY

> *An excellent diver boards the boat with a plan…he contemplates the wreck, studies its deck plans, memorizes its contours, decides on a work area, sets reasonable goals, then constructs a strategy to accomplish those goals.* (Kurson, 2004, p. 26)

Introduction

Essentially a study is about answering a question by unearthing deep rich answers. I wished to not only answer the question, but to "find things that make our understanding richer and deeper" (Shank, 2002, p. 33). This chapter explains the strategy I used to address the research questions set out in Chapter 1. It examines the reasons for this particular research design and methodology, discusses trustworthiness and ethical considerations, and concludes with the methods and processes used to select participants and collect data. In short, I share my plan.

The Nature and Purpose of the Study

This descriptive, exploratory qualitative study was designed to reveal driving and restraining forces that act on the integration of active learning in undergraduate classes. It complements other studies in medical education that I contributed to during the same time period (Kanthan & Mills, 2004, 2006, 2007; Saxena and Mills, in press), and connects with the campus-wide data collection effort relating to the development of the teaching and learning document (2006-2007).

The guiding problem statement was: *What are the driving and restraining forces that act on the implementation of active learning in undergraduate classes as revealed through the stories and perceptions of selected faculty?* The specific research questions were:

1. What are faculty members' stories and perceptions of active learning at the University of Saskatchewan? How did they know what to do and how to do it?
2. What are the personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What were their expressed driving desires?
3. What are the contextual driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What was perceived to be the "right" climate for them and how did they feel rewarded?
4. According to study participants and researcher, how might the interactions of these forces be described?

I used mixed methods of surveys, interest profiles, individual interviews, and focus groups to explore these essential questions. Stories and perceptions were examined and organized using the areas of the context, the person and the innovation as well as the possible interactions of these forces. To address the purpose of this study, and respect participant anonymity, individual stories became a collective tale.

Research Design

> *Most divers stay exclusively outside the wreck. They come to touch the ship or search for loose artifacts or snap photographs...The spirit of the ship, however, lies inside. That is where the stories have settled.*
>
> Kurson (2004, p. 32)

The design chosen for a study rose above all other possible designs because of the particular problem, the context of the problem, the participants involved in the study, and the predilections, beliefs, values, and skills of the researcher. This study was designed to get inside "where the stories have settled," to retrieve memories and perceptions related to the integration of active learning in participants' teaching. Using mixed methods, rooted in phenomenology and narrative knowing, access was gained to the memories of the lived experience of individuals through the stories and unique experiences they shared in a bounded time frame or process. This section highlights progenitorial notions of phenomenology, narrative knowing, and mixed methods that helped form the design of this study.

Phenomenology

A phenomenological study "is generally concerned with describing and analyzing conscious experience – or the nature of individual awareness" (Gergen, 2000, p. 127) with the researcher intimately connected to and involved with the phenomena being studied (Gall, Gall, & Borg, 2003). Individuals, participants and researchers, exist within a context and, from a phenomenological view, remain inexorably imbedded in their contexts and the social interactions that occur within those contexts. As researcher, I am like a traveler to a foreign land; I

have enough familiarity with post-secondary education to be comfortable while I am still able to look thoughtfully and carefully because I am not *too* comfortable (Mills, 2007). I am deeply interested in this research area. Participants shared this interest. Together, we explored to further understand the driving and restraining forces acting on the integration of active learning in undergraduate classrooms.

Narrative Knowing

Shank (2002) stated that "the link between phenomenology and narrative knowing is extensive" (p. 154). One comes to know the conscious experience of individuals through the stories, or the "informal narratives" (p. 152), they choose to tell and in the ways in which they choose to tell them. When asking people for their perceptions of their own circumstances, there are inherent difficulties. Golden (1997, p. 1) indicated that:

> Autobiography, if there ever is such a thing, is like asking a rabbit to tell us what he looks like hopping through the grasses of the field. How would he know? If we want to hear about the field, on the other hand, no one is in a better circumstance to tell us–so long as we keep in mind that we are missing all those things the rabbit was in no position to observe.

Keeping in mind the potential blind spots of participants' self-reporting, "narrative inquiry is a way of understanding experience...a collaboration between researcher and participants over time, in a place or series of places, and in social interaction with milieus....Narrative inquiry is stories lived and told" (Clandinin and Connelly, 2002, p. 20). Gall et al. (2003) defined narrative inquiry as "a representation and explanation of reality that is communicated through various

story structures and anecdotes" (p. 592). Creswell (2002) suggested that narrative research is about individuals and their stories but that this type of research does not lend itself to a "broader system and group perspective" (p. 521). The weakness of Creswell's position is that, although each story might be a discrete unit and unique in its own right and that each participant is an individual *and* a discrete case (Chin, 1989), through the stories of several individuals, emerging themes or patterns might present themselves through a sense of one at a time *and* all at once. Through the storied and unique experiences of individuals, themes might be revealed. When the individual stories are combined and viewed as a collective, "genres" of informal narratives might emerge (Bruner, 1996, as cited in Shanks, 2002). In this study, I collected the stories of participants and used these stories to form an aggregate portrait of faculty. In addition to the stories of faculty, as the researcher, I also share the story of my experiences and my perceptions of the findings.

Mixed Methods

It is not uncommon for educational researchers to use qualitative and quantitative research methods. The art is in choosing the best method for the study rather than choosing methods based on current trends or strictly drawn philosophical lines. Tashakkori and Teddlie (1998) indicated that, "whatever philosophical and/or methodological approach works for the particular research problem under study" (p. 5) is the best choice. Johnson and Onwuegbuzie (2004) stated that a pragmatist calls on the best of all methods available to best address the research questions and suggested that by taking a mixed approach, researchers are able mix and match design components that offer the best chance

of answering their questions. Brewer and Hunter (1989) indicated that researchers should collect multiple data using different research approaches so the resulting combination provides complimentary strengths and accounts for the potential weaknesses in any one method.

I chose to use mixed methods to provide participants with opportunities to share in a variety of ways, check validity of my small sample, and capitalize on the individual strengths of various research methods. To "deliberately seek both information about an objective, universal reality by quantitatively analyzing Likert scale data in a survey, and information about multiple, subjective realities by conducting comparative analysis of open-ended questions on the survey" (Rocco, Bliss, Gallagher & Perez-Prado, 2003, p. 3), I collected the wide variety of data necessary to fully develop a case. The intent was not to alter behaviour through these processes (although behaviour might have changed) but rather to collect incidents and memories to create a rich tapestry of data that were analyzed, as described in detail in the section on data analysis, in a variety of ways.

The study was descriptive and exploratory to explain and describe forces acting on a select group of keen volunteer faculty members at the University of Saskatchewan as they made teaching decisions to include active learning. I gathered multiple data sets relating to the driving and restraining forces that faculty experienced. It was within the purview of this study to discover not only what a phenomenon is like, but also how and why it occurs (Van Dalen, 1962).

Ultimately the principles described in Chapter 2 guided the research design. We created a short-term community of practice (Wenger, 1998, 2002)

that provided rich and complex data while, at the same time, might have provided support and collegiality for the participants. The activities—fundamentally active learning strategies to engage the participants in the process—were designed to help their stories become more richly detailed and elaborate with the telling and retelling (Mishler, 1995). While the primary objective was to collect rich and layered data, the process modeled best practices in faculty development. These elements, commonly used to instigate change in practice, were used to draw out memories and sustain interest and commitment over the five weeks. A study designed to benefit participants as quickly as possible might be one of the highest forms of research afforded a learning community.

According to Greene and Caraceili (1997), mixed methods are necessary to dig deeply: "The underlying rationale for mixed-method inquiry is to understand more fully, to generate deeper and broader insights, to develop important knowledge claims that respect a wider range of interests and perspectives" (p. 7). To address individual preferences, participants were offered different ways to convey their perceptions and experiences. Opportunities to share verbally were provided in the interview, and in large and small groups. Written responses were collected on the survey, the driving and restraining forces survey, and the interest inventory. Participants used charts and diagrams when completing the individual and large group force field analyses. Not providing the categories to participants, I asked questions about the impact of driving and restraining forces on the inclusion of active learning in undergraduate classroom teaching at several points using different instruments. In groups, they brainstormed in pairs and individually. Each person also completed the instrument. At the final meeting,

small groups completed a chart indicating the driving and restraining forces. From all these sources, the information that participants provided was compiled and categorized under the headings developed for the research questions. In addition to sharing perceptions of the forces currently acting on the integration of active learning in their own experiences, faculty also hypothesized actions that could potentially be driving or restraining forces.

I chose this particular set of processes to gather data for the study for a number of reasons. First, and the most important consideration in this research design, had to do with the quality of data one is able to collect. The memory is selective and influenced by one's immediate situation. Stories reveal themselves gradually (Mishler, 1995). It was important to elicit the subtle driving and restraining forces faculty experienced when making pedagogical decisions. After reading an article by Kane, Sandretto, and Heath (2oo2), I created a design to be carried out over a period of time with several ways built in to "hook memories" (Rupp, 1998) and create personal buy-in. Kane et al. did a thorough review of studies on the teaching beliefs and practices of university academics that indicated that what people say they do and what they do are not always the same. They found that researchers who asked for information (self-reports) drew out certain information while those who asked and observed teachers in action got different impressions.

Although I did not observe participants teach, I asked the same questions three specific times. I raised awareness of the topic and, hopefully, floated memories and feelings to the surface by engaging participants over the course of the study. Second, this process had the potential to be an invigorating

opportunity for the individuals who participated. During the five weeks of the study, participants, their colleges and the university community might have benefited from the raised profile of active learning on campus and my expertise in instruction, process facilitation, conducting focus groups and interviews, and designing workshops. I have worked as an instructional coach with a wide variety of educators over the last 16 years. As the facilitator, I contributed to the group in a subtle and non-intrusive way. Third, this process required participant involvement for a set duration. The study was contained to five weeks.

Philosophically, this design aligned with my belief that interactions among people are potentially rich experiences for everyone involved, that it is important that everyone involved feels that they have been enriched by the experience, and that exciting surprises can occur when we make room for them. Shank (2002) stated that “surprise is the lifeblood of qualitative research” (p. 193), and that qualitative research provides space for tactical decisions. I carried out a process that dug deeper and hooked the memories and experiences of the individuals participating while leaving enough room for serendipity and surprise.

Research Methods

Over five weeks, participants were involved in a variety of activities that facilitated the remembering and retelling of stories. Several data collection methods were used to provide opportunities for stories to (a) become more detailed and elaborate and (b) for consistencies and inconsistencies to develop that might offer additional insight. This section outlines the processes used to collect data.

Data Collection

I capitalized on mixed methods to help participants unearth as many memories and perceptions as possible through the construction of stories at three separate times—discussions in focus groups held on different occasions; written responses to an interest inventory, a survey, open-ended questions, and a force field analysis; and an individual interview. Outlined in this section are: recruitment procedures; the types of data collected, data collection methods, and the instruments used; data analyses; and the format for reporting the data.

Participants

Participants were all instructing at the University of Saskatchewan at the time of the study. I sought out innovators and volunteers interested in teaching who wanted to participate. I contacted individuals who indicated an interest in active learning and teaching through their attendance *Exemplary Teaching: Inspiring Learner Engagement and Success*, November 1-3, 2006; 28th National McGraw-Hill Teaching, Learning & Technology Conference hosted by the University of Saskatchewan. I contacted 90 conference attendees by email inviting them to participate in the study. I received a positive response from five individuals. Often the "no" response for not being involved from those who responded to the email was that they did not have the time to participate; their plates were already full.

Five was a less robust sample than was desirable so I invited three more participants through professional connections and contacted an individual I knew to be passionate about teaching. Seven people participated in the entire study and completed all forms, and two others were only interviewed. I

discovered well into the study that two of the nine participants were actually term appointments. I chose to include these individuals in the study to provide another perspective. They were enthusiastic about teaching and were willing to commit to the study. It also became apparent over time that two people did not actually use active learning other than on rare occasions, but again I chose to include them in the study to provide other perspectives. As it turned out, their contributions were extremely revealing and enlightening. Appendix C contains the materials for recruitment. Appendix D contains materials for the participants' involvement in the study.

The Data Collection Process

A variety of data were collected through multiple means: a survey, audio-taped interviews from which notes were made, an interest inventory, force field analysis charts developed by individuals and groups, and two large group discussions in a focus group setting. In addition to these time-honored qualitative methods, I used a workshop format in the focus groups. I incorporated the other elements in the two events a month apart, and the individual interviews at the conclusion. As stories evolve and deepen with each telling (Mishler, 1995; Clandinin et al., 2002), data were collected at the two half-day workshops and the individual interviews. The half-day sessions informed the final individual interviews which focused on the process, any *ah-ha*s, and any other driving and restraining forces in the areas of the context, themselves, and the innovation of active learning. At the focus group workshops, participants discussed the active learning incorporated to date and its effectiveness; completed a survey, an

interest inventory; and created force field analyses charts individually, in pairs and in the large group.

As well as a great deal of experience conducting and participating in focus groups and individual interviews, I have extensive experience designing workshops to meet specific objectives. According to personal and professional characteristics set out by Greenbaum (2000), I am considered a skilled moderator of focus groups. To delve into the memories and experiences of participants and learn more about driving and restraining forces, I used my skills and expanded on the standard focus group format to facilitate rich discussion.

Participant consent was garnered after an initial explanation of the intent of the study, the processes in which they would be involved, and the benefits that they, their colleges and the university might experience from involvement in the study. The Consent Form was signed by all participants regardless of their level of involvement. Data were collected from March 2007 to May 2007.

I made notes from the first large group meetings and taped the second one. All nine participants were interviewed individually in early May after the final focus group meeting. The interviews were arranged to best suit the schedules of the participants and to meet at locations most convenient for them. Each interview took approximately 45 minutes. Some were longer but none were shorter. With participant permission, individual interviews were audio-taped (with the exception of one). I made notes during and immediately following that unrecorded interview. I made thorough notes from each tape. As an experiment, I had one of the interview tapes transcribed and found that the actual transcription was not value-added.

After the interviews were completed, I checked the web presence of all participants. One participant was a recipient of the Master Teacher Award and a college Teaching Excellence Award, nominated for the 3M Teaching Fellowship, and was repeatedly nominated for the USSU Teaching Excellence Award. Another participant had been awarded the Students' Union Teaching Excellence Award.

Figure 3.1 provides an overview of the procedures. Notably, there were slight differences between the meetings held in March and the one in April. Those differences are outlined in Figure 3.1. All interviews began with a common question and then developed from that point on. All materials were collected. In some cases, participants returned materials through the campus mail system. These were coded for anonymity and tracking.

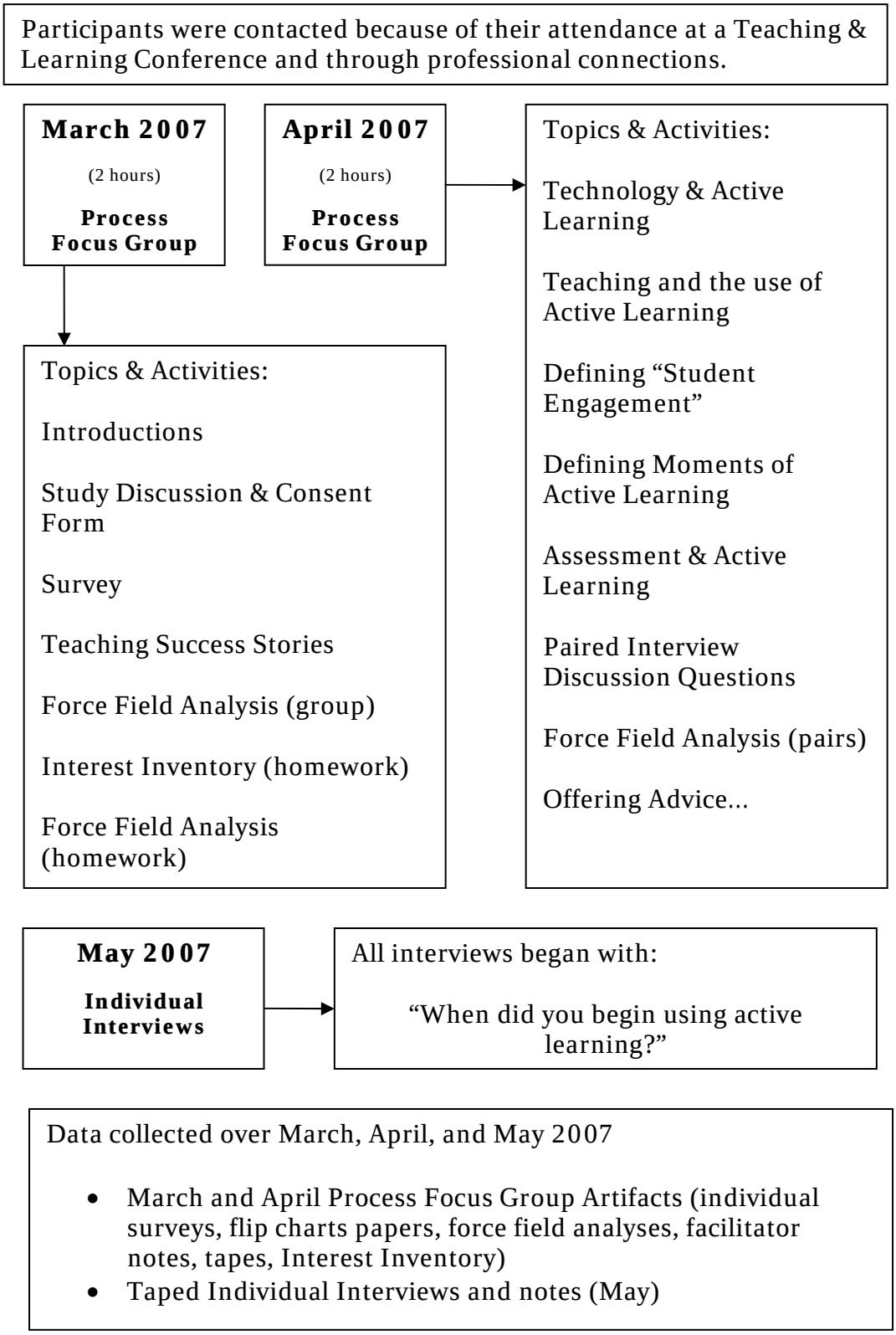

Figure 3.1. Overview of procedures.

Meetings, Forms, and Interviews

In this section, the meetings, forms, and interviews are described separately. The information from each method is sorted later in Chapter 5 into the categories of the person, the context, the innovation, and the interaction of these categories.

Meetings. There were two rounds of meetings—the first one in March 2007 and the second one in late April 2007. Seven of the nine participants attended the March meeting, and five attended the April meeting. As the memory is selective and influenced by one's immediate situation, stories were revealed gradually (Mishler, 1995). I also found that stories became even more rich the more I listened and reread my notes and the data. It seemed that I heard the same story differently each time I listened to it. This process took approximately a year. I began to notice over this time what stayed the same, what changed from telling to retelling, and what was not there at all. Incongruities were especially interesting. Appendix E contains the materials that were used in the half-day sessions.

Forms. The agendas for the half-day sessions guided the development of the forms, contextualized the instruments, and established the processes in which the participants engaged. The survey collected demographic information (Section A) and opinions about active learning (Section B), assessed levels of use (Section C), and invited general comments (Section D). Even though trialed, Section C (an adaptation of the Concerns-Based Adoption Model) was unclear and participants asked many questions as they were filling it in at the first focus group workshop. The interest inventory collected information about specific areas of interest in the

area of active learning that the individuals might have and information about faculty development they had participated in or facilitated. The Force Field Analysis was a list of possible driving and restraining forces gleaned from the literature review. Participants completed these individually first and I guided them through the process of creating the force field analysis chart. They created an aggregate chart in the large group.

Interviews. The concluding individual interview was an opportunity for final reflections on the process as well as another opportunity to add to memories and stories already shared. It was the only time I was with participants individually. Each interview lasted approximately 45 minutes and was conducted in a location that best suited the participant. All but one of the interviews was audio recorded.

The Meetings

Participants attended a two two-hour meeting in March 2007 and a two-and-a-half hour meeting in April. The meeting times accommodated individual schedules while still having at least four people at each meeting. At the initial meeting, the study was introduced, participants were asked to complete the *Survey* and the *Consent Forms*, we had a lively and open discussion, and participants left with the *Interest Inventory* and the individual *Force Field Analysis* to complete and return. In this section, the meetings and interviews are described and the data from these meetings and all instruments are reported in Chapter 4.

Workshop Focus Group Meeting (March 2007)

The March meeting was held at two different times to accommodate participants' schedules. Rather than the expected group of eight, there was one group of four and another of three. One participant, although confirming attendance, did not show up. The process was the same for both meetings and the data were pooled and will be reported as a single event.

The meeting began with general introductions, an introduction to the study, and an invitation to share teaching stories of success. Participants were invited to choose a superhero pseudonym for use in the study so their forms could be grouped and kept anonymous. However, in the small groups, with much joking and laughter, they were soon no secret! Consent forms were discussed, completed, and returned.

Conversation started as soon as people walked in the door. Discussion was easy, open, lively, and unrestrained. Most participants knew of each other. Once everyone was present, I distributed the consent forms and asked participants why they had accepted the invitation to be involved in this study. I shared my interest and background in this area. After about 15 minutes of open discussion we had more formal introductions around the room by way of "What are you teaching?" and "What do you generally teach?"

Participants then filled in the *Survey*. Some of the stems in Section C were questioned and we discussed these in the group. It was a pleasant mood of genuine interest and inquiry. Stories of great teaching moments were shared. The room buzzed with enthusiasm as people related their stories. I then asked "What do you love about teaching?" The discussion was, again, open and lively. After

sufficient time, I gave a brief background on *Force Field Analysis* and the group brainstormed driving and restraining forces. Participants took the *Interest Inventory* and the *Force Field Analysis* to complete on their own and return through the campus mail. The session went quickly. People seemed enthusiastic about teaching and students.

Workshop Focus Group Meeting (April 2007)

Other than email contact to arrange the second meeting, there was no contact with the participants. We met approximately five weeks after the March meeting. Although eight participants agreed to attend the meeting, the same individual who had not attended the March meeting, without notice, did not attend again, another participant called to say there had been a last minute schedule change, and a third person rescheduled for another time. Five participants attended the meeting. In this group of five, two people were new to the other three as they had been in different groups the first time. Two pairs went to discuss the interview questions for 30 minutes; the fifth person had an appointment with a student and rejoined for the final portion of the meeting. We concluded the meeting in the large group, sharing final advice that could be offered to administration about facilitating active learning. Once again, the time went quickly.

The session began informally with two participants, who knew each other well, talking about Pod casts and the reaction of their students. They discussed the technical aspects. When another person indicated interest, help was offered. There was lots of laughter all around as we settled in with more discussion about the pros and cons of technology. I asked participants to define “engagement.” The

discussion moved onto web cam information and ideas were shared about that. A couple of people in the room were keen on technology and dominated the conversation for a time. The others appeared interested, but didn't offer comments. To change the focus, I asked about technical support available to them and then asked "What has been engaging for *you* in teaching and active learning. What were defining moments that turned you on to active learning?" The response to those questions was instantaneous.

In the group meetings I felt excited and enthused, and participants indicated that they did as well. Success stories and highlights were invigorating. The room was alive with enthusiasm and collegiality—feelings of sharing a common passion.

Individual Interviews

Participants were individually interviewed at their convenience. With the permission of the interviewees, all but one of the interviews was audio-recorded. Interviews followed a standard format (Appendix E-3) and progressed in a natural, conversational way lasting anywhere from 45-90 minutes.

Analyses of Data

Using multiple mixed methods was like sketching a subject, video-taping it, taking a still photograph, describing it through a poem, painting it, choosing a piece of music to represent it, and developing metaphors to link the unknown to the known. Mixed methods provided an opportunity to collect a variety of data which were analyzed each to its own kind, and then viewed through different lenses. In this section, I present the ways in which the rich and varied data were mined.

Using an inductive process, data in this study were collected, grouped, and collated. I used analytic induction, a process that readily applies itself to qualitative analyses through the examination of the data for emerging themes and patterns (Gall, Borg, & Gall, 1996). As suggested by Willms (1990) and Miles and Huberman (1994), I started with general themes derived from the literature review and added sub-themes as these developed.

Rich and layered data were gathered through group discussions, individual interviews, and written responses. All the information gathered from Lickert-type scale questions was put into chart form initially before converting it to text. Information from flip chart papers, my notes, and all written comments from participants was also entered. I listened to all tapes several times and made notes. Once entered, all materials were organized and numbered to make retrieval simple. I kept hard copies and electronic copies of all data. Data were then examined and grouped qualitatively by the themes identified in the conceptual framework. Although some statements could have been placed in more than one theme category ("student engagement and enthusiasm" could have been placed in *the interpersonal context* or *rewards)*, I chose to place a statement in only one category. Data were analyzed in a rudimentary quantitative manner when appropriate. To inform analysis, I counted the number of comments or observations gleaned from the data in each category (Silverman, 1993).

Data were analyzed in two distinct streams. To check for possible inconsistencies and increasingly complex forces, each participant's data set, where discernable, was kept discrete to track stories as they possibly deepened over time and with retelling. Although individual narratives were collected and

tracked (Appendix G), the purpose of the study was to determine driving and restraining forces, so those narratives have not been showcased in this document. Distinct stories are not attributed to particular individuals. To address the purpose of this study, and respect participant anonymity, individual stories became a collective tale. As indicated in Table 3.1, participants 3, 4, 5, and 7 submitted all forms and participated in all the meetings and the interview. Participants 2 and 6 contributed all but the written responses to the paired interview discussion questions. Participants 8 and 9 were interviewed. Participant 1 did not submit the force field chart or the written responses to the paired interview discussion questions.

Table 3.1.

Data Contributed by Each Participant

Participant	Interview Discussion questions	Survey	Force Field Analysis	Force Field Chart	Interest Inventory	Individual Interview
P1		X	X		X	X
P2		X	X	X	X	X
P3	X	X	X	X	X	X
P4	X	X	X	X	X	X
P5	X	X	X	X	X	X
P6		X	X	X	X	X
P7	X	X	X	X	X	X
P8						X
P9						X

Data also resulted from the "collective" group work. For example, the large group force field analysis was done together. These data sets were analyzed with consideration of the individual data sets and as a discrete set. Data from the individual cases were compared to the collective data. Each set of data was put in an accessible format—flip chart papers and notes taken at the first large group were entered. I made notes from all tapes. Responses to each of the survey sections were tallied and the responses to the Interview Discussion questions were entered. After all data were collated and reviewed, I categorized responses using the main themes from the literature review. The responses to the survey, all interviews, and notes from the large group sessions were analyzed in terms of the driving and restraining forces at play in terms of the organizational contextual and personal categories as discovered in the literature review. I watched for instances when "two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstances in which alone all the instances agree, is the cause (or effect) of the given phenomenon" (Van Dalen, 1962, p. 222). I used data collection activities of various modalities over a bounded-span of time to reveal the unstated and the unconscious experiences of individuals. I remained vigilantly alert to outliers. The relationships of the data with the research questions are illustrated in Table 3.2.

Table 3.2.

Data-Question Analysis

Data collection method	Q1 Active learning	Q2 Organizational driving and restraining forces	Q3 Personal driving and restraining forces	Q4 Interactions of these forces
Individual Interview	X	X	X	X
Interest Inventory	X			
Survey	X	X	X	
Force Field (individual)	X	X	X	X
Force Field (group)	X	X	X	X
Group discussions 1 & 2	X	X	X	X
Discussion Questions	X	X	X	X

Trustworthiness and Ethics

The following section addresses trustworthiness and ethics regarding this study.

Trustworthiness

A descriptive and exploratory study was designed to "yield a truthful result and one that can be interpreted as such" (Van Dalen, 1962, p. 249). Kurson (2004, p. 84) suggested that "if an undertaking was easy someone else already would have done it." The purpose of this section is to illustrate that, although this study is unique—no one else has carried out a study quite like this one—it brought to light significant insights and is indeed a trustworthy study. It is not

enough to assume that the study provided information to the readers of the study. The study itself has to be valid and reliable to instill trust and confidence in the findings, and that the interpretation and reporting of the findings, is *useful* in that readers of the study will be enlightened by its findings (Altheide & Johnson as cited in Gall et al., 2003). Gall et al. (2003, p. 223) indicated that:

> In practice, researchers tend to apply looser validity and reliability standards to questionnaires and interviews than to tests because they typically are collecting information that is highly structured and likely to be valid. Also, they are interested in the average response of the group rather than the response of a single individual.

The information gathered throughout the study was reliable in that, in all but two cases, the stories and perceptions revealed were consistent over time and not in opposition to current theories on change and curricular innovation. The stories and perceptions developed in detail over the course of the data-gathering period and through the various data collection methods. The inconsistencies that were revealed over time, and with the various data collection methods, provided a foil and contrast to further strengthen all stories. The following questions guided the development of the study, and kept me "honest" at all stages:

1. Can we trust the information gathered in this study and the interpretation of this information? Does verisimilitude permeate the study; is there a sense that what one reads is real/realistic/believable?
2. Would other researchers find similar results if they used the same process with the same population?
3. Did the information gathered address the questions that were asked?

4. Did the study have internal validity?
5. Are the results generalizable? and
6. Did the study have external validity?

Other researchers might be able to replicate this study and arrive at similar conclusions if they shared similar beliefs around communities of practice, self-organizing organic group development and the magic of processes that engage participants, and if they shared a similar set of facilitation skills with this researcher. That said, "if you follow in another's footsteps, you miss the problems really worth solving" (Kurson, 2004, p. 84). As we will see in later chapters, the findings of the study conducted campus-wide resonated with this study as did my experiences with the use of active learning in my own teaching and in the instructional coaching of medical faculty.

Following the advice of Brewer and Hunter (1989), I collected multiple data using different approaches to account for the potential weaknesses of any one method. There was ample opportunity for triangulation of data with the variety of processes used; the same issues were addressed from a variety of angles. For example, it was important to me to discover the importance of teaching to faculty not just by stating their interest outright but also by indicating if they are trying different strategies and/or participating in faculty development directed at instructional practices.

To assure internal validity, the survey was piloted with a select group before being sent out to the population in question. I chose to modify the C-BAM instrument to make it congruent with the other sections of the survey and less cumbersome. This portion of the survey remained troublesome and I had

questions about its usefulness in addressing the research questions. As you will see in the Epilogue, the small sample size could have posed a concern but did not.

Although the specific results of this study were not intended to be generalizable, the study provides general *ideas* that might be applied in a wider context. A specific population participated in this study rather than a sample of a much larger population (that of faculty members at all universities in Western Canada, Canada, or North America). This study was a multiple case design and the criteria of validity apply—plausibility, authenticity, credibility, and relevance (Gall et al., 2003).

Not only was it important to create a feeling of trust in the instruments used and the design of the study, it was also important to ensure that the collection of the data was done in a trustworthy manner. To minimize potential "perceptual blunders" and "weaknesses of the human memory" (Van Dalen, 1962, p. 39), I kept all hard copies of the returned forms and all audiotapes and notes made from the interviews and group meetings. All raw data have been saved and stored by my advisor. In addition, I kept a detailed journal of impressions and activities. Like bread crumbs along the trail, researchers will be able to use these to navigate in subsequent investigations should they choose to follow.

Ethics

The letter of invitation clearly stated that participation was entirely voluntary and participants were free to withdraw at any time. I extended an invitation contact me at any time with concerns. There was little risk or opportunity for deception in this study. The study population was not vulnerable, captive or dependent. There was no social risk to participants. Participants were

fully informed of the purpose and their active role in the research process. As far as I know, the research procedures did not cause any negative emotional responses such discomfort, fatigue or stress. Moreover, participants were enthusiastic to participate. No compensation, other than delicious snacks at our group meetings and a rewarding, empowering experience, was provided for participation. I could think of no possible harm that participants experienced as a result of participating in the study and none has since been reported. Data are stored in a secure location for a minimum of five years.

I was given permission to use all information that participants provided. The research did not infringe on the rights of participants in any way. All participants in the study are anonymous in this document, and at no point are their identities revealed. Anonymity is not easy in a small university community. To preserve anonymity as much as possible I chose to focus on the aggregate of information shared by the participants rather than on the participants themselves or their unique, and in some cases, identifying stories. No quotations are directly attributed to a particular individual; in that way specific information can not be associated with specific participants. No audio taping was used without permission. There was no opportunity for participants to be personally identified through any comments reported in the data, although when any direct quotes were used, they are identified for audit through a coding system. The raw data is only available to my advisor or his designate. The results of an audit of the fidelity of the reporting of the data are included in the Letter of Attestation (Appendix F-4).

The complete *The Application for Approval of Research Protocol* (Appendix F) includes materials required by the Behavioural Research Ethics Board at the University of Saskatchewan.

Summary of Chapter 3

A mixed method study capitalizes on the benefits of each method while minimizing the possible deficits. To best answer the research questions posed in this descriptive and exploratory study, written and verbal responses were elicited from participants. The data were gathered from March 2007 to May 2007 from volunteer (and co-opted) faculty active learning proponents at the University of Saskatchewan. The data were aggregated, coded, categorized according to the themes identified in the conceptual framework, and analyzed quantitatively and/or qualitatively.

Chapter 3 outlined the research design and methodology, and discussed the instruments used and data analyses. The ethics of the data collection and its use, and trustworthiness have also been discussed. The next chapters in this study report the findings and an analysis of these findings with recommendations and implications.

CHAPTER 4

THE DATA

Introduction

Information is reported from the Survey, the Interest Inventory, and the individual Force Field Analysis followed by emergent themes from the stories shared in meetings and interviews. In Chapter 5, the data, gathered from March 2007 to May 2007, is related to the guiding research questions and the categories of context, the person, and the innovation identified in Chapter 2.

Written Forms of Data Collection

Seven faculty completed the Survey (Parts A, B, and C), the Interest Inventory (Parts A and B), and the Force Field Analysis (Parts A and B). In this section, responses to each of the three forms are outlined.

The Survey

There were four sections to the Survey (Appendix E-2). Section A contained basic demographic information, Section B focused on active learning, and Section C raised specific questions regarding interest and use of active learning. Participants were invited to share general comments in Section D. Participants completed the survey before much discussion about active learning had occurred and before completing the Interest Inventory that listed a variety of active learning strategies. Responses from each section are reported separately.

Section A

Participants were from eight different colleges and ranged in age from 40-59 and had taught from four to 25 years at this university. Two individuals had also taught at other universities. All but one individual were quite passionate

about teaching (4+ on a scale of 5); this person was moderately passionate (3). All participants spent at least 30% of their time teaching. One participant taught for 95% of the time and another taught for 60% of the time. Although being a faculty member at the university was a requirement to participate in this study, two participants were term appointments in their respective colleges. The study was well underway before this became clear.

Section B

Participants were asked to strongly disagree, disagree, agree, or strongly agree with each statement. The option to choose "don't know" was available but was not exercised. A summary of responses is available in Table G-1 in Appendix G-1.

All participants agreed that making learning more active for students had a relative advantage over other ideas about teaching, and that including more active learning met student needs. Four respondents felt that other faculty members could not observe the results of implementing active learning. Although one respondent agreed that including more active learning was compatible with existing organizational values, this respondent went on to add that there were "lots of words not too much action" (N102). This individual also agreed that active learning was easy to incorporate in the university classroom but that it "requires some initial effort from the instructor" (N103). This same individual disagreed that other faculty members could see the results of implementing active learning and felt that "this activity has to be shared with other faculty" (N103).

Section C

Section C, adapted from the Concerns-Based Adoption Model Levels of Use (C-BAM), was included to rudimentarily assess faculty's concerns and interests regarding including more active learning. Participants were asked to respond to each item in terms of their present concerns including active learning in their teaching. There were 34 questions in this section. Participants who completed the form in the group setting requested clarification of some of the stems. One respondent indicated that it was difficult to complete the survey without knowing what "active learning" included (N207). Interests and concerns clustered around collegial sharing, resources, students, learning more about active learning, and role concerns. A summary table of responses is provided in Appendix G-2.

Collegial sharing. Respondents expressed interests and concerns regarding collegial sharing. All participants were interested in knowing what others were doing regarding active learning and wanted to discuss the possibility of including more active learning with others. Further, all participants stated an interest in connecting with faculty members in their departments and in other colleges and universities. Most respondents showed interest in coordinating efforts with others to maximize the effects of including more active learning, helping other faculty include more active learning, and familiarizing others with their progress in including more active learning. One participant suggested that a designated meeting area like a Learning Commons was needed for faculty to discuss and share experiences (N107).

Resources. All participants wanted to know what resources were available if they decided to include more active learning. Some concern was expressed about the time it took to coordinate tasks and people in relation to active learning, but most thought that this was not taking too much time. Similarly, most participants were not concerned about having enough time to organize each day or about conflicts between active learning and other responsibilities, nor were they completely occupied with other things. Most respondents were interested in more information on the time and energy commitments that might be required. One respondent stated that, "lack of time and institutional recognition remain the major factors limiting adoption of these, and other, teaching innovations" (N506).

Impact on students. All participants stated a desire to revise their teaching to include more active learning based on feedback from students, but there was only some concern about student attitudes towards including more active learning. Most participants were not concerned about how including more active learning would affect students or about evaluating any impact on students in relation to including more active learning. The majority of participants would like to excite their students about the innovation.

Learning more about active learning. All participants expressed interest in learning more about how active learning is better than what they have now. Although respondents had knowledge about including more active learning they were not concerned about revising their use of it. The group was divided on knowing if some other approaches might work better than the changes made by including more active learning. Less than half the respondents indicated concern

about including more active learning or about their ability to manage all that including more active learning required.

Role concerns. The majority of participants wanted to know how their roles might change, how to make decisions, if their teaching or administration would change, and how including more active learning would require attention in the immediate future. The group was divided on wanting to know the effect of including more active learning on their professional status. Respondents were also divided regarding their concern about the time spent working with nonacademic problems related to active learning.

Interest Inventory

The Interest Inventory had two parts. In Part A, participants were asked to indicate the frequency with which various teaching strategies had been incorporated in their undergraduate teaching in the previous two years and to indicate any interest they might have in learning more about a strategy. Part B focused on participation in faculty development opportunities regarding active learning. Participants were also asked to indicate the effectiveness of various forms of faculty development.

Part A

Debates were used least frequently and research and presentations were used most frequently. Five participants were interested in learning more about concept mapping. Results are displayed in Appendix G-3.

Part B

Instructional coaching, professional reading, and workshops were the most effective forms of faculty development experienced in the past two years.

Communities of practice were accessed least frequently, and workshops and conferences were the most frequently accessed forms of faculty development. In addition to the types of faculty development listed, one participant added *reading teaching dossiers* (effectiveness 2 of 4), *listening to other lecturers deliver and analyzing sample lectures* (effectiveness 3 of 4), and *having informal conversations with other teachers* (effectiveness 3 of 4). Results are tallied in Table G-4 in Appendix G-4.

Individual Force Field Analysis

The individual *Force Field Analysis* had two parts. Items in both parts were drawn from the literature as potential driving or restraining forces. In Part A, participants rated how effective each of the ten items might be to motivate them to include more active learning in their teaching. In Part B, participants indicated the degree to which each of the nine items would detract from including more active learning in their teaching. Parts A and B both used a scale from "not at all" to "a great extent."

Part A

All participants felt that the personal desire to improve the quality of education for students, intrinsic motivation, and opportunities for instructors to receive assistance to improve their teaching would all be effective motivators. Six of the seven respondents felt that small grants awarded to faculty to try new methods of instruction with each project carefully evaluated and publicized widely would be considerably effective. Most respondents felt that publishing survey results of recent graduates' thoughts about their education would *not* be

effective in increasing active learning. One person chose not to respond to four items. Responses are summarized in Appendix G-5.

Part B

Three respondents felt that conflicting messages in the university reward structure detracted greatly from their attention to teaching. Comments indicated that being a fully-tenured professor meant being less concerned about related competition and rewards, that attitudes among department faculty had a definite impact on the culture around teaching, and that, because faculty control almost every aspect of teaching, no one prevented them from innovating. Responses are summarized in Appendix G-6.

Stories Shared by Participants Regarding Active Learning

Various opportunities were provided for participants to share stories about using active learning. Meetings and the private interviews provided different opportunities and conditions for stories to become more detailed and elaborate with the telling and retelling. In some cases, stories were shared consistently several times in the interviews, the group meetings, and on the Interview Discussion Guide. In all but one case, the information shared in the interviews was congruent with stories and perceptions shared in the group meetings and on the forms. For the most part, stories stayed the same with embellishment over time. I wondered if the stories actually became richer in detail or if I heard more detail as I became familiar with the individuals and their stories.

Stories were grouped by themes, explored for similarities and differences, and assessed as driving or restraining forces. To provide anonymity for participants and focus on the driving and restraining forces that had an impact

on the use of active learning in undergraduate classes, stories were aggregated around themes. Appendix G-7 provides the individual stories shared by participants told in the first-person.

What Do You Love About Teaching?

With the exception of one individual, all faculty responded clearly, unequivocally, and with enthusiasm when asked "What do you love about teaching?" Participants loved the genuine involvement and interest of the students in the class. They found it inspiring to see students engage on deeper levels and "light up" with enthusiasm. Faculty who used active learning loved seeing students involved, interested, engaged, excited, and enthusiastic about classes while the individual who did not use active learning seemed more concerned about students' opinions regarding instructional practices and how draining teaching use to be.

Defining Moments

I wanted to know how faculty members became involved with active learning so I asked them: "What were defining moments that turned you on to active learning?" Defining moments were positive, exciting, and out of the ordinary. All seven participants had a treasured memory from their student days and classes they had taken. These stories were told with spontaneous enthusiasm. Participants shared experiences involving a starfish, a squirting hose, a pendulum, and fireworks in class (Appendix G-7) and hoped to create similar memories for their students.

Getting Started with Active Learning

I then asked what had initially involved them with active learning in their undergraduate teaching. All recalled, with ease, their earliest experiences with active learning (Appendix G-7). In their youth, two participants had taught or coached. These individuals then pursued teacher training and had teaching experience in public education. Two participants were schooled in the United Kingdom in science. For them, lab work and active learning were synonymous. Three stories involved situations where students had difficulty with complex concepts and active learning provided solutions to these problems. One participant began using active learning in small third- year seminar classes from the outset. One respondent had been urged to use a particular method by an esteemed colleague who sat in while the method was used. Another individual shared that a senior colleague had been an enthusiastic supportive model for using active learning. This same individual also used active learning when it was an expectation in a course taught by multiple instructors. The person who did not use active learning did not have a positive story to share. Early attempts with "group work" yielded less than satisfactory results and the strategy was quickly abandoned.

Stories of Success

Positive, enthusiastic responses continued when faculty shared active learning success stories. These stories centered on student engagement and success to a great extent. Participants shared stories of receiving positive feedback from students, sharing interests with students, and hearing that students had recommended their classes to others. One individual felt successful

when a student with a failing grade of 23% on the first midterm came to see him every week, raised this mark to 55%, and then completed the course with an 83%. This was the only student to fail the first midterm and go on to pass the class. Although that particular story did not relate directly to using active learning in the classroom, it exemplified faculty's enthusiasm about seeing students succeed with difficult concepts.

Story clusters. Success stories, shared in detail in Appendix G-7, were clustered into three groups. The first cluster of stories was about using active learning in the classroom on specific occasions or for a specific purpose such as introducing a class or course. The second cluster of stories illustrated increased control for students in the content and process of the class through student presentations in class. Faculty members were enthusiastic and excited about the success and quality of group presentations. The third cluster of stories illustrated how active learning was woven into the design of the course. In one case, the instructor used the Socratic Method while in another, from the beginning, students were involved in the actual course design. In another case, the course was structured around the use of semi-notes, group discussions, and the collaborative development of a board of notes.

For participants in this study, active learning was used to increase levels of student engagement, ownership, and responsibility to different extents. Participants exuded enthusiasm and pride when telling the stories and stories did not change much in the various settings or over time—other than in one case where there was inconsistency. The publicly-shared stories differed substantially from the privately-shared stories. In the group settings, this individual spoke in

positive general terms about events or feelings related to active learning. Feelings revealed in the private individual interview were far less glowing and revealed tiredness with teaching as well a fair degree of cynicism about today's students. As stories were retold, it became evident that active learning had been used in the past but the individual had since lost enthusiasm for teaching.

Inspiring Change

The question "What inspires you to make changes in your teaching" elicited stories about slow, gradual change over time (Appendix G-7). Change was generally inspired by a desire to make things more interesting or to be more effective for students. Stories indicated a slow evolution over the span of a career. One participant described teaching as a long, slow experiment. Over time, this respondent saw what worked and what did not, but major changes took time to assess and adjust. All but two individuals had been teaching for at least twenty years but although it was twenty years, it was really only twenty trials.

Summary of Chapter 4

In Chapter 4, data were reported from the Survey, the Interest Inventory, and the individual Force Field Analysis as well as the emergent themes from the stories revealed in the meetings and interviews. In Chapter 5, data are categorized into the areas of context, the person, the innovation, and possible interactions to address the guiding research questions.

Chapter 5

THE QUESTIONS AND THE ANSWERS

Introduction

After compiling and examining the discreet data from the survey, the interest inventory, the individual and group force field charts, individual interviews, and focus group sessions item was judged as either a driving force or a restraining force, and then categorized as *context*, *person*, or *innovation* from categories determined in Chapter 2, under a main heading, and then further grouped under a sub-heading within each category. Table G.7 in Appendix G-8 lists the raw data from which the sub-categories developed and the tallies of each category and sub-category.

In the category of *innovation,* only the relative advantage of active learning over other forms of teaching had more driving than restraining forces. In the category of *context*, policy and faculty development had more driving than restraining forces. In the category of *person*, however, the driving forces outnumbered the restraining forces. Driving forces in that category included career goals, life stages, personal style, values and beliefs, and the resonance of the teaching style with personal values and beliefs.

Returning to the Guiding Questions

The guiding question for this study was "what were the perceived driving and restraining personal and contextual forces, and possible interactions of these forces that contributed to the actualization of active learning in undergraduate university classrooms?" The specific questions were:

1. What were faculty members' stories and perceptions of active learning?

What “unfroze” them? How did they learn about active learning? How did these practices become integrated into their professional practice?

2. What were the personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What were faculty's members driving desires?
3. What were the contextual driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What was the “right” climate for faculty? How did they feel rewarded?
4. According to study participants and researcher, how might we describe the interactions of these forces?

In the following sections, each research question is addressed specifically using the categories of the force field synthesis.

Question 1—The Innovation

“What were faculty members' stories and perceptions of active learning? What 'unfroze' them? How did they learn about active learning? How did these practices become integrated into their professional practice?” In this section, faculty members' stories and perceptions of active learning are specifically highlighted and is followed by what was revealed about the instigation and integration of active learning in their teaching repertoires.

Faculty Members' Perceptions of Active Learning

The innovation itself has an effect on its spread in an organization. Although participants had different stories and definitions of active learning, all stories were told with enthusiasm and revealed common elements and beliefs about active learning. Participants' comments and stories regarding active

learning were categorized according to their relative advantage over other strategies, compatibility with other strategies and the context, the complexity of the innovation itself, how easy it was to try, and the observability of its impact and results. Table 5.1 provides a tally of the data in this category.

Table 5.1

Driving and Restraining Forces Related to Innovation

Category	Driving	Restraining	Difference
Innovation	30	55	25R
Relative Advantage	21	2	19D
Compatibility	8	17	9R
Complexity	0	10	10R
Easy To Try	1	21	20R
Observable Results	0	5	5R

Overall, there were more restraining forces than driving forces in this category overall. Only the "relative advantage" of active learning over other forms of teaching had more driving factors than restraining forces.

Relative Advantage of the Innovation

In this sub-heading, 21 comments pointed to a belief that active learning had a relative advantage over other forms of teaching. Participants frequently stated that active learning was more fun than more traditional forms of teaching for them and their students. Active learning and learning about active learning helped to keep things fresh. All but one participant thought that active learning was an advantage over other more traditional forms of teaching, other ideas

about teaching, and over the current situation. However, all faculty also wanted to know how including more active learning was better than what they had and they were all interested in learning more about active learning at this time. Although participants were familiar with research on the effectiveness of active learning regarding student learning, critical thinking skills and relating to students' personal experiences, all participants wanted more supporting evidence and clear benchmarks for success. All faculty members were interested in learning more about active learning but less than half showed concern about including more active learning.

Two comments were categorized as restraining forces related to the relative advantage of active learning. Both comments were offered by individuals not using active learning. One individual lacked faith in active learning strategies and was skeptical that students would actually learn if they were not lectured to. For this individual, the lecture offered security and a way to control what students were learning. The other individual stated that grading for evaluation purposes was draining but active learning involved evaluation processes that were even more draining.

Compatibility with Other Methods and Context

Compatibility of active learning with other teaching methods and with the context was another category of forces. Eight comments were categorized as driving forces while 17 comments were, in fact, restraining forces related the compatibility of active learning with other forms of teaching, available resources, ideologies, and aspects of the professorial role. The science instructors felt that active learning was compatible with science and labs. Active learning was

compatible when the course objectives included skills or values that could be reinforced or practiced by using active learning.

Active learning was not compatible with subject matter, assessment practices, evaluation procedures or evaluation criteria, technology-driven innovations like PowerPoint, or reliance on publishers' texts. Participants stated that classes were not long enough for active learning activities, available resources were inadequate, and that not as much content could be covered with active learning.

With an emphasis on support for incorporating technology in classes over the past number of years, participants speculated that technology might be a competing instructional innovation. Although mentioned frequently with enthusiasm and interest, participants wondered if technology was making classes less active and engaging for students. One participant believed that technology was driving teaching to even less engagement as it becomes cheaper and cheaper to use "clicker" technology. Participants indicated that on-line courses further reduce engagement and interaction. Overall, participants felt that technology was decreasing active engagement in learning.

At the same time, discussions about technology were positive and lively and involved much information-sharing. One participant felt that one can do more with technology, more easily, all the time sharing that "in my case, very important: look for ways of streamlining routine tasks. Also have backlists of stuff I want to do once the technology is available" (N5.1). Participants were eager to share information about using technology and offered help and support with its

use to one another. I did not hear any other offers or requests for support or information regarding other instruction methods or innovations.

Skepticism about students' ability levels and students' abilities to learn on their own through active learning was revealed in some conversations. Discussion ensued about "good students" and students who were less able. A few participants believed that active learning left students more on their own to learn and that many students are not capable of learning on their own. This belief was not shared by all participants, but it was an assumption on the part of the two participants who stated a keen interest in the idea of active learning but were not actively using it in their teaching.

Some concern was expressed regarding classroom management and the class environment. It was offered that "some" instructors might be threatened by noise in the classroom. When students are quiet teaching is easier and feels safer. A noisy classroom might occur when students are interacting. In a context where the norm has been that the instructor lectures and the students listen, students' voices and "noise" might not be compatible becoming another restraining force. Early trials of active learning might go badly and might incur a negative reaction from administration.

Teaching sits outside of other activities in which a professor is engaged. While other activities (such as being on ethics committees, sitting on graduate students' committees, writing articles for peer review) contribute to the *content* being taught, those activities do not directly contribute to the ways in which professors teach. To attain new teaching information or "catch" enthusiasm for

teaching, a professor is required to depart from other activities that might be more directly related to and supporting of other aspects of the professorial role.

Complexity of the Innovation

Participants were confused about what constituted active learning although the definition of active learning was used in recruitment as well as in the Interest Inventory. According to participants, active learning was complex. In fact, no one indicated that active learning was *not* complex. On occasion, "active learning" was confused with an "entertaining presentation style" or assignments outside of class. Although entertaining lectures and active assignments for outside of class time might enhance learning, this was not the parameter for this study.

As an umbrella term for a wide variety of instructional strategies that actively engage students in their own learning, it might be that "active learning" is "complex" simply because of its broad definition. The broadness of the definition and wide variety of options created confusion that was alienating rather than engaging. Participants felt that there are too many choices to make regarding active learning. Responses showed a desire for more information about the effectiveness of active learning and had concerns about resource availability.

Contrary to this perceived complexity, individual signature pedagogies were not presented as being "complex." Having evolved naturally over time, these appeared to be easily tried and integrated. It was my impression that they had used active learning strategies for a significant part of their careers. Other than integrating new technologies (which might or might not be "active learning"), no

new strategies had been recently added other than by the individual who was relatively new and was using the scholarship of teaching for career advancement.

Ease of Trial-ability

Closely related to the issue of complexity of active learning was whether or not it was easy to try. Some thought that active learning could be tried in small ways and modified as needed. One participant started using a form of active learning in one class and then added it in other classes. Although one participant stated that active learning was easy try to with "some initial effort on from the instructor" (N103), it was more common for participants to report that active learning was *not* easy to try. Only one comment stated that active learning was easy to try while 21 comments claimed that it was not easy to try. Timetabling, class scheduling, large classes, and inappropriately equipped classrooms were all named as restraining factors. Participants found it much easier to do active learning in labs or small seminar-size classes.

The active learning strategy that was used might also have an effect on whether or not it appeared easy to use. Student presentations were used most frequently as active learning strategies. Presentations, prepared outside of class time, were delivered in class. However, simulations, creating visual models, experiments, demonstrations, group discussions, case studies, problem solving, and in-class work teams were frequently employed. Other methods like brainstorming and concept attainment which are teaching strategies that can be used to engage students in content were less frequently used. Five participants were interested in learning more about concept mapping.

The current assessment system was not seen to be compatible with initial trials of active learning. Participants felt that bureaucracy restricted spontaneity by requiring the preparation of learning materials to be done far in advance of the course and that made it difficult to try active learning. Rigidity in course structure and content and the amount of time it took to become familiar and fluent with active learning were also prohibitive. “Time” was mentioned frequently by all participants as a major restraining force—time to learn about different teaching strategies, time to prepare to use new teaching strategies, time to develop proficiency with new strategies and all that goes with that change, and the lack of time available to experiment given large class sizes and a consistently heavy work “load.” In addition to these restraining forces, participants also suggested that initial trials were apt to be failures. So if something is perceived to take a lot of time (and time away from other things) and it might fail and not be appreciated by students or the bureaucracy, what would be the point in even trying especially when the results are not observable?

Observability of the Results of the Innovation

There were no driving forces in this category. Five restraining forces were alluded to. On the survey, more than half the group reported that other faculty members cannot see the results of implementing active learning. It was indicated that active learning has to be shared with other faculty. Some participants noticed that students seemed to have a better understanding of course material when they used active learning.

Generally faculty did not observe the effectiveness of active learning. Faculty said that no change was noticed but their specific examples indicated that

when active learning strategies were implemented to address specific student difficulties then faculty noticed that active learning was effective. Some participants noticed that students seemed to have a better understanding of course material when they used active learning. Participants suggested that it was hard to measure good teaching and student learning in general, but it was even harder with active learning when there are few models or benchmarks.

In summary, the innovation of active learning was perceived to be difficult to try, complex and confusing, hard to observe the effects of its use, and not compatible with methods of teaching currently being used. However, participants were virtually unanimous in their perception that active learning was "better" than other methods available.

The Instigation and Integration of Active Learning

The integration of active learning was generally instigated by a desire to provide students with a positive educational experience. Participants wanted to give their students either the positive opportunities they had experienced as students or save them from boredom. *Participants taught how they would have liked to have been taught as students.*

The reinforcement to continue with active learning was also student-centered. Positive feedback from students encouraged participants to continue to use active learning. Feedback came in a variety of forms: engagement in subject matter, enthusiasm for ideas, questions students asked that showed interest and comments on evaluation forms.

Faculty development often instigated and helped to integrate active learning. Active learning was generally learned about through workshops and

conferences and professional reading. Participants spoke positively of the Gwenna Moss Centre and agreed there was fairly good support on campus. They noted that faculty development could be even more of a driving force, however, if it included timely on-site support for integrating active learning and if support were available to explore alternatives and possibilities. Participants felt that they would benefit from being exposed to and introduced to different teaching methods by teaching experts. A parallel situation that helps to explain this is when one participant mentioned a new computer-aided instructional tool and another participant had not heard of that innovation and wanted to know how it worked. An instructor cannot ask for help with something that is he or she is unaware of so, although technical support was readily available if participants knew what they wanted to do, creative and innovative support was reported to be lacking.

In the spirit of experimentation, new practices became integrated in participants' teaching through trial and error. The implementation and evaluation cycle was long and required patience. Methods that became integrated into practice addressed a particular question or concern in a timely fashion. When a method worked, it was integrated and continued to be used.

When participants told stories of what initially involved them with active learning in their undergraduate teaching and what stayed with them throughout their careers, some commented that it was just part of who they were. There was a personal style and/or a content match. Content that was about active involvement made active learning a natural choice for instruction. Individuals who felt that they were the kind of people who liked to involve others and liked to

be involved liked to use strategies that involved students. More reserved individuals seemed skeptical of more “gregarious” types of strategies. One individual felt that it was an imposition on students to ask them to *do* things in class. In this case, active learning was not a personal style match.

Smaller seminar-type classes seemed to lead to early use of participative strategies. In two cases, individuals who used active learning in their earliest teaching experiences were initially trained as teachers. In another two cases, “active learning” was viewed as another way to say “scientific method.” These individuals had been trained to think in an active learning way in their undergraduate education and in their home countries. One person had a “trial by fire” experience when thrust into using a form of active learning by a senior colleague who sat in on classes. Another individual learned of other things to incorporate into classes and began experimenting to see how to make classes more beneficial to students by gradually adding more and more into classes over time. For two individuals, active learning information coincided with a perceived problem related to difficult concepts and resulted in personal “signature” pedagogies over time.

Question 1--Summary

Participants indicated that active learning was complex, not easy to try, difficult to observe, and not compatible with other teaching methods currently in use. Active learning was, however, thought to be more effective than other teaching methods.

Participants were using active learning even though restraining forces related to the innovation outnumbered driving forces 53 to 32. It seemed that

faculty had certain perceptions about active learning and its integration but their actual practice was not always in alignment with these perceptions. For example, participants said that changing from lecture to active learning was a big change, but it appeared that most participants had made small incremental changes over time.

Triggered by early student experiences, eight participants claimed to like teaching in general and had included some form of active learning at some point in their teaching. Fueled by a desire to create positive learning experiences for students and encouraged by student engagement and enthusiasm, practices introduced early in their careers had become integrated into their professional practice over time through experimentation. Participants tried various active learning strategies in their classes and kept what worked and discontinued what did not work. With two exceptions, faculty did not add new pedagogies in more recent years. After developing a personal "signature pedagogy" early in their careers, they continued to use and "tinker" with this pedagogy.

Question 2—The Person

"What were the personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What were faculty members' driving desires?" This section reports on driving and restraining forces related to the individual regarding the integration of active learning strategies into their teaching repertoires and outlines participants' driving desires for this integration.

Personal Driving and Restraining Forces

Of the three categories of forces, only personal forces had more driving forces than restraining forces (Table 5.2.). Driving forces were more than triple the restraining forces. Each sub-category will be examined separately.

Table 5.2

Driving and Restraining Forces Related to the Person

Category	Driving	Restraining	Difference
The person	63	19	44D
Career goals	5	1	4D
Roles	3	4	1R
Life stages	3	1	2D
Personal style	11	0	11D
Values/beliefs	20	5	15D
Resonance	6	0	6D
Process of change	12	8	4D

Career Profile and Goals

Tenure was a major driving force for participants. One participant on a term teaching contract pursued the scholarship of teaching for career advancement. The effect of including more active learning on professional status was of concern to half the group because interest in other areas took time away from active learning—and vice versa.

Roles of the Professoriate

Some participants wondered how their role might change if they included more active learning. The perception of teaching within the role of the professor was a factor. Viewing teaching as an academic and scholarly activity was a driving force. Participants often referred to the perceived importance of teaching within their departments as a driving force. Most felt that teaching was valued in their departments and there was a strong history of that perception. One individual who had stated a personal affinity for teaching felt alienated when this value was not shared departmentally.

Engaging students through active learning might blur the distinction between student and teacher which might have a negative effect if an individual has constructed professional identity that has the teacher as the disseminator of wisdom. The view of teaching and the role of the teacher impact the value placed on teaching and the amount of energy that a person is willing to put into an area based on that value. Although the literature suggested that professional and personal autonomy is a potential restraining force this group, felt that this autonomy could actually be a driving force giving faculty the freedom to choose to use active learning.

One participant commented that the construction of professional identity happens quickly. Determining what a university professor *does* also happens quickly. This attitude is further narrowed by content area. For example, “this is what a History, Economics, English, Marketing, or Education professor does” (N11, 12b). A rapidly-set professional identity might be a restraining force if the individual does not see teaching as an important and valued part of that role. In

that case, making the effort to include active learning might not be important or fit with that perception at all. If teaching is not perceived to be a major part of the role then putting effort into that aspect would actually make no sense.

Various activities in which professors engage generally complement their *content* but not the process of teaching. Attending faculty development sessions on teaching and focusing on teaching were welcome breaks from other responsibilities and a way to meet and share a similar interest with faculty from other colleges.

Life Stages

All participants were in their 40s and 50s. All but two had academic university careers spanning 18 years. There were no new faculty members in this group. The two participants with minimal years at the university were on term contracts. Although I was not looking for information about personal lives, participants spoke openly and candidly about their long-term committed marital relationships. With one exception, it appeared that all participants had stable personal lives as well as tenured, stable work lives.

Only one restraining force was offered in this category. One individual revealed in the interview that it was harder to teach when students might consider this individual "old" and "not cute or hip anymore" (N28). From the other stories, it became apparent that confidence came with successive positive experiences.

Personal Style

Active learning suited participants' personal styles. Several individuals relished taking risks and were easily bored. One individual mentioned feeling

confident about teaching and another commented that active learning "relieves the pressure to be the 'expert.'" One participant felt strongly that the combination of the content and the personality type was important (N26). It was also mentioned that feeling safe at work was important in order to take risks in teaching. Overall there was a resonance with *teaching* and a personal desire to improve the quality of education for students.

Values and Beliefs

Full-study participants were intrinsically motivated about teaching and active learning, and felt a personal resonance with teaching and a desire to improve the quality of education for students. Participants shared what they loved about teaching offering another possible source of driving forces. All but one of the stories indicated that the interactions with students and student engagement were personally important. Participants relished the genuine involvement and interest of students in class. All participants reported that they wanted to see students succeed. One individual, who found learning magical, enjoyable and enriching, wanted to share this personal enthusiasm with students.

Shared beliefs about teaching were that students bring knowledge with them and participants desired to help their students develop wisdom. Faculty understood the progressive nature of learning for themselves as well as for students. Participants felt they would value active learning as a student. One participant raised the questions of "Why are we teaching?" and "What value do we offer to people?" and "What value do we offer to the marketplace" (N3.1)? This respondent suggested that how these questions are responded to determine how an individual chooses to teach.

Participants' personal values showed a strong desire to improve the quality of education for students. They were interested in teaching better, this was a personal choice, and there was a sense of achievement in doing so. It was worth it personally to them. Participants felt good helping others. They desired consistency between their beliefs about how people think/learn and how they teach. One respondent's mother was a teacher and felt that this influenced a connection to teaching.

Only five restraining forces surfaced in this category. The stories of two participants revealed a lack of alignment between what they *said* they valued and what they actually *did*. In both cases, there were initial stated values in favor of teaching in general and active learning specifically but both these individuals revealed over time that teaching was difficult and exhausting. Both participants believed that students only learn what they are directly told through lecture, and that active learning either leaves too much up to chance or that students are not responsible or capable enough of participating in active learning. Another participant reported rumors that teaching was not going so well in other departments. Stories of less-than stellar teaching might be a restraining force.

Resonance with the Innovation

Resonance with the innovation of active learning was closely tied to personal values and beliefs about teaching in general and active learning specifically. Positive student experiences, being exposed to teachers who used active learning, and experiences with active learning as a student were all driving forces. Conversely, negative experiences as a learner were also a driving force. Another driving force was using active learning in other settings prior to coming

to campus. The lack of faith in the effectiveness of active learning and discomfort with student "noise" and direct involvement in the process were both highlighted as restraining forces.

Process of Change

Change was inspired in a number of ways. Comfort and familiarity with course content provided the security to experiment with new teaching methods. Participants revitalized their teaching by attending workshops, updating their teaching plans, incorporating successful practices, and experimenting over time. Change was slow and organic. Teaching evolved over the course of their careers. A focus on teaching competence and course design renewal was fun and stimulating for one individual who claimed perennial dissatisfaction and easily ensued boredom.

One individual appreciated being observed by a colleague. Another felt giving and receiving encouragement was helpful. Several restraining forces were offered. Participants felt that teachers teaching how *they* were taught prevented innovation. Other restraining forces were fear, stress, feeling drained by teaching in general, and not feeling comfortable or "expert" with the content.

Driving Desires

For seven participants, teaching was personally rewarding and challenging. Faculty were driven to active learning by desires to provide a quality learning experience for students, to teach as they wish they had been taught, and to keep excited and engaged in their teaching.

Question 2—Summary

Integrating active learning was personal desire as well as a personal and professional fit. Participants revealed a strong desire to be effective teachers. Not surprisingly for a group already using the innovation, participants' values, beliefs, career goals, resonance with the innovation, life stage, and personal style were all driving forces for the inclusion of active learning in their undergraduate classes. The only restraining force offered by participants was tensions within the professorial role. Perhaps it is more reflective of the stories and comments of participants to say that the multiplicity of the professoriate role was a restraining force.

Question 3—The Context

"What were the contextual driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms? What was the "right" climate for faculty? How did faculty feel rewarded?" For the participants in this study, the context played a smaller role in the integration of active learning than the literature review suggested. Faculty freely shared their experiences and perceptions regarding the environments in which they worked. Of particular interest were the occasions when the reported symptoms and the observed signs lacked congruency.

Contextual Driving and Restraining Forces

Participants' comments pointed to faculty development and policy as driving forces for active learning, but that the culture, rewards, peers, and students were restraining forces. Table 5.3 shows more restraining forces than driving forces in the category. In this section, each category will be explored.

Table 5.3

Driving and Restraining Forces Related to the Context

Category	Driving	Restraining	Difference
Context	63	86	23R
Culture	14	22	8R
Policy	12	4	8D
Rewards	10	15	5R
Faculty Development	12	0	12D
Peers	3	19	16R
Students	12	26	14R

Culture and the Innovation

The *culture* of the organization was frequently mentioned by participants—so frequently, in fact, that it became its own sub-heading in this category. Although some driving forces had been experienced by participants, others were "wishes" or "shoulds" they believed would encourage active learning and teaching. Participants speculated that a culture favourable to teaching would have special places for people to gather and talk about teaching, scheduled teaching rituals, positive teaching experiences would be discussed more often, and people would use teaching-friendly language. Much of the discussion around culture had to do with the desire for informal sharing and story-telling about teaching in comfortable settings like a learning commons where experiences with active learning could be shared collegially over coffee. Participants wanted to be

around others who were also excited about teaching to share specific techniques and positive exciting stories.

Participants felt that active learning and a keen interest in teaching were "permitted" but not actively encouraged on campus. Participants perceived that the culture emphasized research and writing with "bean counting" articles taking precedence over teaching. Teaching was not identified with "the path to success." Being a good teacher was seen as a bonus but hardly a requirement. Participants commented on the low status of teaching on campus, stating that the culture needed to change to value teaching.

As an example of how quickly a positive success-sharing discussion could shift, one particular discussion shifted from general comments about "institutional indifference" that is satisfied with "adequate" teaching to systemic discrimination of teaching and a lack of systemic embedding of teaching in the culture of the institution. When sharing specific experiences regarding active learning, stories were positive and lively, but as participants began discussing the organization more generally, they became more negative and skeptical. Participants' direct experiences with active learning were positive but their perceptions of the organization were neutral at best. Collectively, they quickly created a microcosm of the negative culture they were criticizing.

Some participants felt that the environment was not safe to be instructionally innovative, but others felt that as tenured professors they were free to do all the innovating they wished. A perceived downside of professional autonomy was that, when reviews by others have almost no impact on one's work, there is little or no pressure in any direction. One individual felt collegially

isolated by the desire to improve students' learning experiences. This individual had also reduced the amount of active learning included in undergraduate classes over the years only integrating active learning if it was required for that course or when others were also "doing it." This individual was perhaps the most swayed by the organizational culture. Faculty felt pressured to "get through the course." Time to try things out and experiment in teaching was time away from other activities.

Policy and the Innovation

In general, policies were more of a driving force than a restraining force. Participants indicated that policies regarding teaching and active learning were neutral at best. As one participant was clear to point out, faculty control almost every aspect of their teaching including how many courses they teach, under what policies, how they are evaluated, and the performance standards. Participants reported a greater emphasis on teaching in all appointment and promotion proceedings, and three participants indicated that a greater emphasis on teaching in all appointment and promotion proceedings would be moderately effective in increasing active learning.

The survey revealed some support for government agencies and foundations making more money available for research and experimentation on ways to improve teaching effectiveness. Doing more to determine how much students have learned in their courses, having support, being relieved from administrative responsibilities to experiment, and using technology to simplify some things would buy time for increasing active learning. Participants mentioned teaching dossiers as being driving forces as well.

Restraining forces in this area were criteria that emphasized research, recruitment conflicts, and blaming the organization when it is within the purview of faculty to innovate in their teaching as much as they wish to. One participant stated that organizationally there are "lots of words [but] not too much action" supporting active learning specifically and teaching generally. Participants questioned whether sufficient resources would be available if one were to decide to include even more active learning. An example was shared regarding a lack of funding for field trips. Field trips support active learning. Competition for resources became a concern along with a stated organizational value of active learning but not the dollars to support that value.

Rewards and the Innovation

Restraining forces outnumbered driving forces in this category. Participants struggled with conflicting messages in the university reward structure expressing that, although the "talk" was there, the "walk" was not. Three participants indicated that more money available for research and experimentation on ways to improve teaching effectiveness from government agencies and foundations would be moderately effective and rewarding. There was some support for small grants for faculty members who wished to experiment with, evaluate, and publish their findings regarding new methods of instruction. Prizes and other forms of recognition for good teaching, profiling award winning teachers, and appointing "teaching chairs" would be rewards that demonstrated that teaching was valued.

The teaching dossier in the new tenure and promotion guidelines was also felt to be a driving force. However, the driving force that consistently surfaced

was positive comments and ratings from students, and to be known as a better teacher. That type of reward was important, meaningful, and sustaining to faculty. Discussions were lively regarding the mixed message that is sent when "relief" from teaching is offered as a reward.

Faculty shared their collective perception that research merit increases go on the salary but teaching merit does not. Participants indicated that a one-time teaching merit bonus of $1000 (rather than an increment of the same to the base salary that occurs with research) was a restraining force. The lack of institutional recognition with lots of "lip service" but no real encouragement was another restraining force. One participant questioned the lack of "Canada Teaching Chairs" and research relief for outstanding teachers.

Repeatedly participants commented on conflicting messages given through the university reward structure; being a teacher has not been highly regarded or rewarded organizationally. A competitive promotion system actively discourages teaching. According to this group, apparently no one is promoted simply on good teaching, and participants commented that the dean or department could not step in and reward.

Even though participants acknowledged that on paper teaching is valued, participants felt that it was not. Basically participants felt that the current reward structure remained unfairly skewed to research and that teaching was not adequately valued through the existing reward structure. Ironically one participant indicated that more time needs to be invested in research to yield small rewards while a small amount of time invested in teaching can make a big difference. It was the perception of one participant that "you can get away with

bad teaching if you are good at other things" (N29). All participants present at the time were discussing unfair reward practices. There was no disagreement on this topic. It seemed to be simply a pragmatic, non-judgmental observation. There was not a mean-spirited or resentful feel to it. Participants were simply observing that the rewards for teaching and research were not equal, and that if teaching and research were to be considered and valued equally, as they are on paper, then the rewards should be too.

Faculty Development and the Innovation

Overwhelmingly participants spoke highly of their professional and faculty development experiences. Their participation in this study was testament to that. There were no restraining forces in this sub-category. Sharing stories and experiences was a development opportunity that they found inspiring and informative.

Workshops and conferences were the most frequently accessed forms of faculty development. Interdisciplinary workshops on teaching provided a break from routine and connection with like-minded individuals. The notion of "communities of practice" was unfamiliar to them and had not been consciously used. Although, the fact that many of the participants in the study knew each other, it could be that informal communities of practice exist on campus.

Instructional coaching, professional reading, and workshops were, in the past two years, the most effective forms of faculty development respondents had experienced. Reading teaching dossiers, sitting in on the classes of others, analyzing sample lectures, and having informal conversations with other teachers about teaching were also identified as effective forms of faculty development.

Readily available support and assistance for teaching would be at least moderately effective as a driving force. Eight participants related experiences of appropriate professional development that helped with skills and techniques, and considered this a driving force.

Peers and the Innovation

From the stories and perceptions offered by participants, the attitudes of colleagues and peers had tremendous impact. Positive feedback from senior colleagues, receiving offers of help from others, and being valued by administrators and other teachers were driving forces. There was unanimous interest in discussing active learning and knowing about the experiences of others and considerable interest in working with colleagues about including more active learning. Six of seven participants were interested in coordinating their efforts with others to maximize the effects of including more active learning, helping other faculty with active learning, and keeping others informed about their progress of including more active learning.

Restraining forces outnumbered driving forces by far. Although seven participants would like to be engaged with others, no one indicated that engagement with others was happening on other than a small informal basis. Although it was felt that coordinating efforts with others could maximize the effects of active learning and there was a desire to help other faculty with active learning, participants generally indicated a lack of collegial support. One participant indicated that the attitudes among faculty in the departmental culture had a negative impact on motivation regarding teaching. That said, six participants (including the person who made this comment) said that the culture

in *their* departments was positive towards teaching. One might speculate that word of mouth about other departments is non-conducive to teaching with second-hand tales trumping first-hand experiences.

A group of restraining forces came to light regarding multiple instructors teaching multiple sections of the same course. Except when a group decides to include active learning, coordinating efforts to maintain consistent and fair practices in teaching to keep the playing field level for students seemed to mean a default to lecture-based instruction. Linking with colleagues and teaching collaboratively with colleagues who might not share the same enthusiasm were restraining forces. Teaching multiple sections of a course that need to be consistent with each other and providing consistent delivery were also perceived to be restraining forces. Participants cited peer reviewers who valued the lecture, teachers teaching how they were taught, peers' fear of "loss of control" in classroom, and colleagues' and administrators' discomfort with active learning as restraining forces. Four participants indicated that being interested in teaching often alienated them from their colleagues. Professorial autonomy, content specialization, isolation, and fragmented communication among faculty members were cited as division and restraining forces.

Students and the Innovation

All participants spent at least 30% of their time teaching. It might be likely that faculty spend more time with students than with colleagues. Positive feedback from students was an effective and sustaining driving force. Students' satisfaction, success, enthusiasm, interest in the content, and ability were all encouraging to faculty. Faculty liked being appreciated by their students and

evaluated highly. Mandatory student evaluations for all courses and sections were discussed. Five participants reported that doing more to determine how much students have learned in their courses would be at least considerably effective in motivating them to include more active learning. Student demand was also a driving force.

One individual commented that teaching changes were made because of student feedback. Although limited to five content changes of a minor nature in first-year courses, one respondent shared that there was no limitation to the changes can be made to teaching methods. Another participant made instructional changes in order to have classes be more meaningful and relevant to students. One participant used active learning to link theory with the "real world." Faculty want to teach in a way that is compatible with the needs of the students modifying their use of active learning based on the student experiences and feedback. Participants wanted to know more about how active learning affects students and about evaluating the impact on students. Some participants were concerned about student attitudes towards active learning. Overall, positive feedback and excitement from their students about what and how they were learning was a driving force for faculty.

While positive student feedback is such a strong driving force, the converse is also true according to faculty. According to participants, the response of students to active learning has the potential to be a strong restraining force, although more restraining forces than driving forces were associated with students. Faculty discussed that student resistance and expectations for traditional conservative methods, complaints, and pressure for PowerPoint and

to supply handouts were restraining forces. “Rate–my-professor” was mentioned specifically as a restraining force but not as a driving force. Faculty had concerns about competition among students, the current diversity of the student population, the ability of students admitted to the academy under special circumstances to handle the work, the perceived ability, competence, and preparedness of students, students not wanting to do much work out of class, and a general concern about how marks are affected by active learning.

There was discussion about students being more conservative about teaching methods than faculty were, having traditional beliefs about what constituted good teaching. Student compliance was given as another restraining force. One individual who mentioned student approval several times and wanted to be considered a good teacher did not want to “impose” activities on the students. Another individual indicated that how a course is categorized makes a difference on how students view the course and the expectations they have for how the course is taught.

Time and the Innovation

“Time” was mentioned so frequently by participants that this theme requires separate consideration. The majority of participants agreed that they were concerned about not having enough time to organize each day to include more active learning and about the conflict between interests in including more active learning and other responsibilities. As one participant stated, “lack of time and institutional recognition remain the major factors limiting adoption of these, and other, teaching innovations” (N506). Time was discussed as a driving force and a restraining force. How to manage one’s time, use one’s time and spend

one's time were often topics of conversation. Participants indicated that they looked for direction about how to make best use of their time given conflicting messages and challenging reward structures. Workload and the time needed to meet that workload definitely had an impact on motivation to teach let alone experiment with alternate teaching strategies, and, if at the end of the day, one is faced with no reward or acknowledgement from peers, the institution, or students, one is hard pressed to continue on in the same manner. Even when there was some indication that including active learning was not taking too much time, it still was *some* time and that required careful consideration.

The Right Climate for the Integration of Active Learning

Faculty hypothesized that the "right climate," a climate conducive to the integration of active learning, would be one in which teaching was valued by the institution, peers, and students. The language used to discuss teaching would indicate respect and value. Faculty members could meet casually and share success stories and trade teaching ideas across departments and universities. Discussions about teaching would occur regularly at department meetings. Rewards for teaching would equal those offered for other scholarly pursuits. Faculty development support would be "just in time" and focus not only on techniques but also on possibilities. Policy would be supportive but not demanding.

Participants noted that the current reality was somewhat different. Peers were not always supportive, students sometimes resistant, policy neutral at best, and the lack of time always a thorn in the side. That said, these participants add integrated active learning regardless of the restraining forces they felt existed.

How Faculty Felt Rewarded

Although participants hypothesized that organizational rewards on par with rewards and acknowledgements awarded for other aspects of professorial scholarship would be motivating forces these individuals had integrated active learning without such rewards in place. Moreover, not one mention was made of having received teaching awards although some participants had. Simply, faculty members were intrinsically motivated to use active learning and felt most rewarded by the engagement, enthusiasm, interest, and success of students.

Question 3—Summary

In summary, faculty development, positive interactions with students, and benevolently neutral policy were perceived to be driving forces. Participants indicated that the restraining forces were more prevalent than the driving forces in this category.

Question 4—The Interaction of Forces

"What were the perceived driving and restraining personal and contextual forces, and possible interactions of these forces which might contribute to the actualization of active learning in undergraduate university classrooms as revealed through the stories, anecdotes, written responses, and surveys of selected faculty claiming to use active learning?" In reviewing the driving and restraining forces, the category relating to the person was the only one of the three that had an overall greater number of driving forces than restraining forces. Both the other categories were tipped towards restraining forces. Faculty development, policy, and the advantage of active learning over other forms of teaching were the only sub-headings that carried more driving forces than

restraining forces. The use of active learning in undergraduate classes seemed to not be driven by the institution or the outstanding qualities of active learning itself, but rather by the personal choices of individuals who felt a kinship to active learning pedagogically and personally. Although these individuals felt active learning was better than other teaching methods, they still wanted more evidence to support that and generally they did not feel that there were adequate benchmarks or models to help navigate the complexity of active learning. In addition, participants reported that active learning was not easy to try nor particularly compatible with currently used methods. They believed that the messages and rewards regarding teaching and research were conflicting. Given the complexity and demands of the professorial role, there was little time left to devote to active learning. They perceived little payback or status to teaching or being a "good" teacher. Time and energy tied up in (teaching) activities yielded little positive return; putting time into teaching was like investing in a losing stock.

Given that rather bleak overview of restraining forces compared to the rather short list of driving forces, what then instigated participants to use active learning? The separate forces seemed weighted to the restraining side by sheer numbers and yet active learning was still being used. What else was going on? This section presents possible explanations based both on the stories and perceptions shared by faculty participants and the inconsistencies I observed.

Problems, Solutions, and Personal Fit

Participants chose to use forms of active learning that personally fit with their values and beliefs. The form of active learning each person used developed

over time, but most often began with the serendipitous convergence of a "problem" and the "solution" to the problem being a particular form active learning. This form of active learning then became their personal signature pedagogy. The convergence of the *desire* to be an effective educator, and valuing education and students, a pressing *problem* related to students not understanding a difficult or complex concept, and *timely information* on active learning that seemed to have resulted in these instructors using active learning.

Perceptions of Students and Student Reactions

How faculty participants viewed students seemed to impact their perceptions of teaching. Generally, faculty had respect for students, and enthusiasm for working with students and wanting to help them in their studies, but now and then comments were made that indicated doubts about students. It was almost as if there were better students there could be better teaching. On the other hand, several stories indicated that the more "freedom with guidance" students were given the more they flourished and stepped up to be even more engaged in the learning process.

When faculty tried something new and the students responded favorably with direct feedback (written comments on evaluations or casual comments about the class in passing or indications of engagement and enthusiasm). Participants found this encouraging and indicated that they were more apt to continue with that process. That enthusiasm led to including more active learning. Conversely, faculty members were discouraged by negative feedback from students and student demands for "all the answers" given in handouts and PowerPoint classes. In the private act of teaching, the students are the only others

involved in the process and their feedback carried weight. Seldom did faculty indicate that support was available from colleagues although they indicated that they wished that support was there.

Personal Confidence

Confidence in one's abilities played a large role. A *persona* of easy going confidence in general characterized participants who integrated active learning in their teaching. This confidence did not seem to hinge on one's abilities to *teach* as much as confidence in general and perhaps a sense of security in their positions.

Conversely, one of the two participants who did not use active learning appeared to lack confidence in teaching abilities as well as student abilities. This respondent found teaching exhausting and felt that active learning was an imposition on students, and personally did not enjoy being active in workshops or at conferences and did not want to make students uncomfortable by engaging them in activities. Another participant in this study capitulated to student requests for PowerPoint and handouts even though this individual claimed that those methods were not conducive to learning. This individual's confidence also seemed low being easily steered by student demands against better professional judgment.

Four participants have had significant positions of leadership on campus at one time or another in the preceding four years. They are successful, open, gregarious individuals who are passionate about their content areas *and* about students and teaching. They appear to have the confidence to take risks and be comfortable with "failure." As one participant clearly stated, being tenured meant doing as one wanted without fear of recrimination.

Participants who used active learning the most were willing to take risks, reassess, redesign, be unpopular, and to push the norms. They seemed less dependent on the good opinions of others and did what they felt was best for students. All participants using active learning sincerely felt that by using active learning they were improving the quality of education for their students.

In addition, five faculty participants expressed their willingness to share control. They indicated that the more they let go, the more students became enthused and engaged. The use of active learning was reinforced in situations where faculty had implemented active learning to address specific problems students were having and students "got it." The participants who had a commitment to active learning (as opposed to just using active learning now and then) demonstrated a spirit of inquiry. Their spirit of inquiry extended to teaching. Teaching was an on-going challenging and rewarding experiment.

The Other Side of the Coin

Two participants did not use active learning as frequently as they first indicated. In one case, the individual actually did not use active learning at all and had serious doubts about the effectiveness of active learning in the delivery of content stating that information and the classroom could be better controlled through lecture. This person seemed quite fearful about making a mistake, losing time, or not reaching students. In both cases the individuals expressed concern about the ability of students. They did not speak confidently of students' abilities and were saddened that students had become less able over the years.

One participant was on a term contract and had not been teaching on campus long. This individual tended to go with the status quo. When supported

by a colleague to include active learning, active learning was used. In a class with multiple sections where instructors were mandated to employ active learning, it was also favoured; but, independently, active learning was not used. This person indicated that it was too time consuming, that the evaluation component was onerous, and students were both resistant and less able than students taught years ago. This individual felt different from departmental colleagues, using descriptors of "weird" and "kooky." Perhaps active learning was believed to be not serious enough for a university classes. This belief was apparent in both the cases of individuals who paid lip service to active learning, one feigning enthusiasm and the other blatantly doubting its effectiveness. In both cases, however, the influence and beliefs of esteemed peers seemed to have some impact on personally held beliefs.

Change

Chapter 2 introduced Lewin's model (1951) of change of unfreezing, forming, and freezing. This section examines the interaction of forces in these terms.

The Great Thaw

Systems, and individuals, tend to conserve energy by staying with the same rules, established norms or codes, or by having a clear and stalwart vision of the future. Tichy (2002) suggested that a situation *thaws* when dissatisfaction with the existing situation, a compelling vision of the future, and positive first steps combine to be greater than inertia or the desire to stay the same. The situation becomes malleable when the thaw has begun.

In this study, participants indicated that they had begun using active learning when they had experienced dissatisfaction with the existing situation, they had information about what might be more effective, and they tried these new methods and had had some success with them. The instructor and the strategy made a good fit. In some cases, the dissatisfaction came from the inside (boredom, a desire to align philosophical beliefs with practice, or wanting more excitement or fun when teaching) and sometimes it came from the outside (students struggling with a particular concept, an esteemed senior colleague saying "try this," or needing to conform to the standards for teaching a course in a particular way). All had information available to them of some aspect of active learning that happened to meet their needs at the time. When they tried these new methods, they met with at least a modicum of success. Most commonly, they reported this success as positive student feedback and/or increased student understanding of previously "difficult" concepts.

Re-Form

After initial first steps, faculty further learned and refined their pedagogy by accessing various forms of faculty development. Faculty development had already been a positive experience for these individuals having supplied answers to teaching problems in a serendipitous and timely fashion. Participants indicated that they continued to access faculty development in a variety of forms.

Freeze

Over time, participants developed what seemed to be personal signature pedagogies. If students spoke to past students of a particular instructor, they could expect certain patterns of instruction and, in general, they would not be

wrong in assuming so. Although the teaching methods used might differ from traditional lecture, these instructors' methods had re-formed into a tradition unique and consistent in their teaching that was not dissimilar to what might be expected as the teaching styles of their colleges. Over the course of their careers, most participants in this study had developed their own variation of the signature pedagogy of their college that seemed unique and persistent to them. The two participants fond of new technologies were integrating these into their teaching as the resources became available, but that was more a case of availability and intrigue with the technologies than a deep dissatisfaction in general. They genuinely liked using the technologies.

In general, "innovation" was not the norm; finding something that worked and refining that was the norm. One participant was continuing to innovate by involving students in course design and planning. I do not imagine that this participant's students would have been surprised at that innovation as it was consistent with self-reported beliefs in student engagement and ownership and was a natural outgrowth of that philosophy.

According to participants, student feedback was negative when the style of instruction was too different from what the students were expecting either for that course or for the college, or when the instructor was not genuinely inspired with the strategy he or she was using. In the first situation, if students were expecting PowerPoint handouts and lectures and were surprised with lectures without handouts and a rigorous set of out-of-class assignments, some dissatisfaction seemed to surface. In the second case, if the instructor was tentative and unsure about not only how to use a strategy but also of its

effectiveness then it seemed that their perceptions of students' experiences were negative. Trying to please students never seemed to be a good idea.

Question 4—Summary

In summary, the participants who actually used active learning in their classes believed that students were capable learners and were enthused by student engagement and positive informal feedback. These individuals had a spirit of inquiry and a calm confidence that might have contributed to having less of a need to control classroom dynamics than perhaps than did some others. Perceived problems were met with instructional solutions that were a close enough fit with existing teaching repertoires to be comfortable.

Summary of Chapter 5

Confidence, a spirit of inquiry, having information about active learning, and feeling that active learning was good for students contributed to participants' enthusiasm for active learning specifically and for teaching in general. Not surprisingly, two of the participants (both in different areas of science) were also engaged in using technology in their classes. They seemed to like trying new things and were excited about what they were doing. All had a sense of enthusiasm about their teaching when they were sharing stories of success.

If there was a continuum of teaching activities going from least to most student engagement, the participant who included students in course design would be at the furthest end of the engagement spectrum. These students were engaged from the onset and that engagement continued through the course. As they prepared to become teachers, this instructor expected students to be both involved personally and to involve the students with whom they were working.

Meaningful student engagement was modeled. On a more subtle level, all were modeling attitudes towards learning as they engaged students. The individual who was tentative and needed high control was modeling that. The person who regularly had students research and present on course topics was modeling the value of everyone being both a learner and a teacher. Not surprisingly, one of this respondent's areas of expertise was in cooperative development.

I observed that when there was consistency between what the instructor claimed to believe and value and what the instructor shared about actual classroom practices, the individuals who seemed to be in "alignment" felt more relaxed to be around in the group and in the interviews. The two individuals who stated one thing but gave examples of other practices that indicated something very different were somewhat tentative and ill-at-ease.

Chapter 6 discusses the findings in light of the literature, and offers implications for practice and ideas for further research. Chapter 7 expands on other research carried out during the course of my doctoral program and the Epilogue integrates personal reflections.

CHAPTER 6

DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Introduction

Within the more general question of how a "good idea" comes to be integrated into practice, the purpose of this study was to determine the driving and restraining forces that act on the integration of active learning in undergraduate classes by faculty members. In Chapter 5, data were presented in relation to the research questions. In this chapter, after a brief review of the study, the findings of this study are compared and related to what others have found. I share my interpretation of the findings; provide implications for theory, further research, and practice; and conclude with a summary that weaves a tapestry of significance for the university community. Chapter 7 integrates this core study with that of my more general research agenda and, in the epilogue, I share insights on my own learning.

Recapitulation

After contacting 90 attendees of a teaching and learning conference, six individuals agreed to participate in this study. Upon invitation, all six conference attendees stated they were interested in and used active learning in their undergraduate classes; however, one individual eventually revealed not currently using active learning and having reservations, while another had only the time to be interviewed. Three more faculty members, who I knew through professional connections, were invited to participate. Of these, one person was keen on and used active learning, one was neutral and used active learning on occasion, and the third person was skeptical and a non-user of active learning.

In this descriptive, exploratory, mixed methods study, data were collected in a variety of ways over a five-week period and then identified as either a driving or restraining force in the categories of *the person*, *the context*, or *the innovation*. According to the stories and perceptions of participants in this study, the integration and use of active learning in undergraduate classes was driven by the personal choices of individuals who felt a kinship to active learning pedagogically and personally. Other driving forces were faculty development opportunities, neutral policy, student engagement and feedback, and the relative advantage of active learning over other forms of teaching. Confidence, a spirit of inquiry, timely information about active learning, and a belief that active learning was good for students contributed to both the inclusion of active learning in undergraduate classrooms and enthusiasm for teaching.

Several participants had developed a *personal* signature pedagogy early in their careers that was more "active" in its orientation but not in opposition to the traditional instructional practices of their disciplines. Although signature pedagogies might *seem* remarkably stable at any one point in time, they, in fact, shift in response to changing conditions in the profession and the larger society (Schulman, 2005). This shift happened with the individuals in my study. Rather than being driven by changes in the profession or larger society, the integration of active learning was apparently triggered by the convergence of the desire to be an effective educator, a pressing problem related to students not understanding a particularly difficult or complex concept, and timely information.

Relating to the Findings of Others

In the following section, I compare what I found with the findings of others beginning with *the person*, followed by *the context*, *the innovation*, and *change.*

The Individual as Curricular Innovator

Overwhelmingly, the individual's beliefs and values factored in the integration of active learning in their undergraduate classes. The extent to which beliefs and values were factors was surprising. In the following section, we will see that what a person believed about active learning, their students, and themselves; their previous experiences and personal processes of change; and their life and career stages all played a role in the integration of the curricular innovation.

Professorial Roles

Given the various aspects of the role of "professor" (Boyer, 1990), how does one decide how to spend one's time when there are many aspects to consider? Tenured faculty in this study spent at least 30% of their time teaching while term appointments spent over 60% the time teaching. My findings were similar to those of Cottrell (2001) in that some faculty took a scholarly approach to their teaching even though they felt that the organizational structure did not support those initiatives as much as it supported and rewarded research. Participants agreed that being a "teacher" has not been highly regarded or rewarded organizationally (Miller & Anderson, 2002).

Although tenured faculty expressed tension between time they allotted to teaching and research, they believed they had the freedom to make choices about

how to spend their time. Participants generally described their research as separate from their teaching (unless they were involved in researching teaching). While other activities such as research/writing, serving on committees, or supervising graduate students were often mutually reinforcing and time and geography-driven, participants indicated that teaching was separate from the rest of their academic lives. Similar to meta-analysis of the relation between teaching and research done by Marsh and Hattie who stated that, "the common belief that research and teaching are inextricably entwined is an enduring myth" (2002, p. 606), concern was expressed by participants about the tension between the mandates to treat teaching and research as equal priorities although they believed that teaching and research were not rewarded or recognized equally. According to participants in this study, teaching and research were found to be distinct and *not* mutually reinforcing; time spent on research/writing was time away from teaching.

Life Stages, and Career Profile and Goals

All participants were 40 and older and the majority had university careers spanning 15-21 years. Most participants openly discussed their family and home life. They were busy with their families and, although at different stages of child-rearing, all participants had children and all but one had a spouse who they spoke of being very supportive. Participants were in the "second half of life," (Jung, 1933) a time categorized by a desire to contribute to the larger whole. It would be interesting to know the ages and career stages of the individuals who declined the invitation to participate in this study. The willingness of individuals to share their

experiences and to contribute to the research of another academic was further testament to contribute to a larger whole.

Other than the individuals on term contracts, none of the participants felt that their teaching was a ticket to career advancement. There were elements of altruism and idealism in their dedication to students and their teaching–they derived enjoyment from students' successes and believed that student success was partly their responsibility.

Values and Beliefs

Certainly the case in this study, for change to occur there must be resonance with an individual's personal beliefs, attitudes, goals, and values about the innovation and its place in their cognitive structure (Gardner, 2004). There was resonance between the individual and their teaching methods as well as alignment between the *content* and the *teaching methods* used. Participants wanted to be effective teachers. They believed teaching was important and (all but two) liked teaching. Their unabashed excitement and enthusiasm was evident. I agree with Fullan's (2003) notion that it might appear that the context cannot be easily changed, but that small changes to the context might be easier to make than changing the background of individuals. I question, however, if small changes in the context would actually impact an individual's behavior if their values and beliefs are not in alignment with the innovation.

Participants felt a resonance with active learning because of their own personal style and their chosen discipline and specific focus. Participants who taught science felt that active learning was the same as a lab–this was how they learned their discipline and how they choose to share their knowledge with

others. They believed students had to be involved for them to be doing "science." Another individual shared a similar perspective–students must be actively engaged in the subject matter. Another participant believed that students could develop an understanding of cooperatives by cooperating in the teaching and learning process. For these individuals, the method of teaching and the content they were teaching were aligned. They were also demonstrating alignment with the signature pedagogies of their disciplines; they had accepted and expanded these elements of instruction and socialization to be an even better fit with their own beliefs and values.

Although not specifically addressed through data collection instruments, I was left with the impression that most participants were positive, optimistic individuals in general. They appeared to believe that what they did made a difference and they seemed to enjoy the company and camaraderie of others. This positive attitude extended to their beliefs about education and their students' ability to learn and succeed. Faculty who incorporated active learning gave the impression that they trusted that their students would become involved and that they were able learners.

The Individual's Process of Change

The individual's process of change had an equal number of driving and restraining forces. My findings in this area were congruent with the findings of other researchers and scholars in many ways. The evolution of personal signature pedagogy is in line with Gardner's (2004) understanding that mind change is gradual and occurs over a significant period of time. I was surprised to learn that, although participants knew about the efficacy of active learning, they

wanted to know more. It was as if participants thought active learning was effective, but they still wanted more even information about its effectiveness.

My findings were similar to those of Csikszentmihalyi (2003), Connor (1992), Hodges (2006), Kagan (as cited in Frank, 1988), Kubler-Ross (1969), Rogers (1983), and Kahneman and Tversky (1984). The participants who abandoned active learning after early unsuccessful trials were skeptical about the effectiveness of active learning and the abilities of students. They expressed feelings of fear, embarrassment, anxiety, or exhaustion related to teaching.

Participants had integrated some form of active learning early in their teaching (Gardner, 2004). The individual newest to university teaching was also the person with the most recent examples of curricular innovation. The time was propitious for him (Whyte, 1994).

In this study, I encountered a degree of resistance to active learning that I was not expecting. Although the study was specifically designed to work with active learning proponents, I discovered that two individuals had initially presented themselves as proponents and then found this to not be true as the study went on. I sensed that they both *wanted* to be part of the group that used active learning but they simply were not. Their initial responses in the study were positive, but this changed through their negativity and inconsistent stories. This is congruent with the findings of several other researchers and scholars. Bok (1983), Kekes (1988), Martin (1986), and Nyberg (1993) each suggested that self-deception and dishonesty might be protection from information overload or feelings of guilt. As Smith (2001) indicated, some are driven by not wanting to be seen as incompetent or inadequate, their behaviour is much different than if it is

motivated by wanting to be the best they can possibly be which certainly seemed to be the case with these two individuals.

Contrary to the indications of Connor (1992) and Elliott, Kratochwill and Roach (2003), participants did not express anxiety regarding the integration of active learning, nor did I sense that a tremendous effort was required to make changes to instructional practices as was suggested by Darling-Hammond (2001). The long, slow process of instructional experimentation was similar to that of the creative process outlined by Leonard and Swap (1999) and Samuels and Samuels (1975) with stages of preparation, incubation, illumination, and revision occurring over a number of years. Participants took time to renovate their teaching, but it did not seem that it required *intensive* study or experimentation as was suggested by Darling-Hammond (1998).

Overall, experienced faculty who believed students were able learners and valued education and teaching used active learning, while participants who doubted the abilities of students and found teaching stressful did not. Along with the freedom of tenure, an individual's beliefs and values played a key role in the integration of active learning. In general, participants wanted to make a difference for their students.

The Context—Driving and Restraining Forces

The major findings in the area of context are not dissimilar from findings in other studies—congruency in organizational rewards and stated values, supportive policy, and readily available and timely faculty development are all effective driving forces. However, lack of organizational rewards did not deter these individuals from using active learning. Policy did not stop them from using

active learning, although they did not think it was overly supportive. Regardless of policy, study participants used active learning. They spoke highly and took advantage of faculty development, finding it informative and invigorating. Large classes, inflexible time-tabling, short class periods, lack of collegial support, and student resistance were named as restraining forces but, again, they did not stop these individuals from using active learning in their classes. They continued to use and develop their personal signature pedagogies regardless of the restraining forces they cited. We do not know if they would incorporate *more* active learning strategies if there were less restraining forces.

My review of the literature revealed that *the context* had an impact on the use of active learning. Faculty indicated that the climate is neutral at best, not directly preventing or encouraging the use of active learning. Whereas neutral policy, faculty development, and student enthusiasm and engagement were driving forces, participants felt a lack of support from peers, students, and the university reward system. As in Smith (1991) and Bok (2003), participants felt that it was not stellar teaching that secured promotion or tenure. Although I am unfamiliar with the research agendas of participants, balancing research and teaching did not appear to be a dilemma for these faculty members. Participants clearly indicated, pragmatically and without malice, that teaching was time away from research and research was time away from teaching.

Similar to Shell (2001) and Panitz (2003), participants felt that students were sometimes resistant to active learning preferring signature pedagogies (Schulman, 2005) and predictable, traditional instructional methods. Participants felt that students, their peers, and administration were not

supportive of active learning. Colleges have reputations for signature pedagogies and students expect these signature pedagogies. Medical classes are expected to be content-laden lectures, science has labs, and law uses cases. Students have been told what to expect and expect to receive just that. This expectation becomes a barrier to expanding teaching options because students might not be open to different pedagogies, and were resistant to them. However, participants indicated that student engagement, enthusiasm, and success were rewarding.

Although collegial and administrative support was apparently critical according to several authors (Larson, 2002; Massey, Wilger & Colbeck, 1994; Probst, 2003; Wenger, 1998; Wlodkowski, 2003), participants did not assign the same degree of import to this support. The lack of support was noted, but did not prevent participants from integrating active learning. Shifting faculty demographics were not identified as restraining forces in this study contrary to the indications of Massy, Wilger, and Colbeck (1994) and Miller and Anderson (2002); nor were professional and personal autonomy or discipline specialization. It was noted that the support would be preferable, but that it was not critical to these individuals.

Participants found that faculty development activities were opportunities to connect with others interested in active learning (Feist, 2003; Massey, Wilger & Colbeck, 1994; Wenger, 1998). Faculty development was meaningful and supportive to faculty in this study (Feist, 2003; Pendleton, 2002; Wenger, 1998; Wenger, McDermott & Snyder, 2002; Wlodkowski, 2003).

Similar to the findings of several researchers (Bruhn, Zajac, Al-Kazemi, & Prescott, 2002; Olsen & Simmons, 1994; Sandy, Meyer, Goodnough, & Rogers,

2000; Shea & Knoedler, 1994; Shell, 2001; Smith, 1991;), for the individuals who did not use active learning, there was some tension between stated values about the importance of teaching and actions taken to address that importance. This incongruence was not evident with other participants.

The Influence of the Qualities of the Innovation on its Integration

From the literature, I had believed that an innovation that is too complex, too hard to try, too different from what is already in place, too difficult to observe, or is not perceived to be better than what is already in place might not be implemented (Rogers, 1983, 1995). That was not the case in this study. Even though most participants had integrated the innovation into their teaching, they indicated that the "implement-ability" of active learning was low; four of the five categories had more restraining forces than driving forces. It appeared that the relative advantage of active learning trumped its difficulties. According to participants, active learning was cumbersome and confusing, difficult to integrate, and hard to assess its effectiveness, but they thought it was better than what else was available. There was occasionally more of a *perception* of including active learning than actually *using* active learning.

The Advantages of Active Learning

The evidence of several researchers affirms that the effectiveness of active learning is compelling in its singular voice of "YES!" (Bligh, 2000b; Bransford, Brown & Cocking, 2000; Dunne & Brooks, 2004; Fowler, 2003; Kanthan & Mills, 2005, 2005b, 2007; Mills, 2003; Russell, Hendricson, & Herbert, 1984; Saxena & Mills, in press; Schwartz, 1999; Svinicki, 2004; Terenzini & Pascarella, 1994; Zull, 2002). Although participants in this study indicated that they would like more

information on the ways in which it *is* effective, they generally felt that the innovation was advantageous over other methods—at least from a theoretical point of view. They were also unanimous in their desire to have more information about the effectiveness of active learning. It seemed that, although they believed active learning was effective, they were not convinced of it.

The Complexity of Active Learning

This study confirmed the findings of Poindexter (2003), Prince (2004), Smith, Sheppard, Johnson, and Johnson (2005), and Schwartz (2004) regarding complexity of active learning. All data indicated that participants found it complex. The teaching vignettes discussed in Chapter 4 and shared in Appendix G-6 illustrated the range of activities that faculty believed to be "active learning."

Contrary to Rogers (1995), however, this complexity did not prevent participants from integrating active learning in their teaching. It might be that, although they considered "active learning" to be complex, it was similar enough to signature pedagogies of their disciplines to be familiar. The complexity could be reduced by introducing active learning in terms of what other strategies it is like and supplying simple definitions and examples.

Trial-ability of Active Learning

Although faculty indicated that active learning was *not* easy to try, a common theme was the initial introduction of active learning followed by renovating their methods over time. Like McManus (2005) and Bonwell and Eison (1991), faculty changed their teaching in small ways and initial trials were generally positive enough to continue (Tichy, 2002). Unsuccessful practices were abandoned.

Compatibility of Active Learning with other Methods

Active learning could be made to be compatible with currently-used instructional methods by making gradual and incremental changes (McManus, 2005; Bonwell & Eison, 1991). Faculty used active learning strategies that were compatible with the signature pedagogy of their discipline, their values and beliefs, and/or with their course objectives.

Observing the Effects of Active Learning

If enthusiasm can be equated with perceiving a positive impact and advantage over other methods, given the enthusiasm of their stories, participants seem to have observed some effects of active learning. Faculty could not easily see the results of using active learning unless they observed its effectiveness in relation to a perceived problem. If the active learning strategy solved the problem, it was effective. There was some discussion about the "seriousness" of active learning similar to that found by Panitz (2003).

Discussion of Findings

Participants were almost unanimous in their belief that teaching was not the path to career advancement. Bringing neither formal nor informal recognition, faculty indicated that being a good teacher was not the way to be successful in an academic career, although four of the nine participants in the study have held, or are holding, significantly prestigious and influential positions on campus. Successful teaching might not be recognized as the path to success, but it certainly did not seem to be detrimental. Given that some participants in this group are in positions of influence and authority, positive attitudes towards active learning might filter throughout the organization.

Participants felt a lack of alignment between organizational enacted and stated values. They spoke of the unfavourable language around teaching and gave examples such as “research opportunities” and “teaching loads,” suggesting that statements such as these further undermine the stated value that research and teaching were equal. Faculty did not perceive there to be an alignment of rewards with stated organizational values. According to participants in this study their greatest rewards came from their contact with students.

Faculty members who were passionate about teaching regularly attended workshops and conferences on teaching and active learning. Timely faculty development was important to them and they spoke glowingly of the teaching and learning centre on campus. The participants most involved with active learning were also engaged in faculty development that provided information about teaching and active learning, and offered a forum for like-minded individuals to gather and share their common interests across disciplines. Conferences and workshops provided several of these participants with time to connect with others who were also interested in teaching and introduced them to people from outside of their discipline areas. They found richness in gathering with others and learning of other perspectives and ways of teaching. Those whose interest was revealed to be less than passionate over the duration of the study took less advantage of faculty development opportunities.

Seminar-like classes and senior projects were seen to be conducive to using active learning as were flexible curriculum requirements and having control of the curriculum requirements. Participants reported that with control of the syllabus they felt freer to use active learning. In general, participants indicated

that coordinating with others teaching different sections of the same course was limiting. However one of the participants who had spoken with great passion and enthusiasm for active learning but did not actually use it, employed it more often when active learning was a requirement for instruction for a course. Knowing that everyone was "doing it" might have helped this individual feel more secure and part of a group. As well as providing faculty with structured ways to include active learning that are successful with students, faculty might feel safer to be instructionally innovative if there is a group that provides support rather than feeling different from the majority.

Although rewards and faculty development were predicted from the literature review, I saw several other forces manifest in this study: the forces of negativity, faculty perceptions of students, the alignment of beliefs and actions, and the regulating that occurs within the organization and the individual. Each will be addressed in turn in the following section.

Regulating

Regulating seemed to happen from "within" in two ways: regulating from within the organization through policy and peer review and regulating from within the individual.

Contextual Regulating

While the university is apparently free from the influence of "church and state," "the ivory tower" is not completely free from the influence of the wider community or its own history and traditions. Peer review has become the regulating influence to protect an academic's freedom to explore.

Regulating from within the organization occurred through responses to rewards and policy, rapid assimilation into the organizational culture, and, as part of the assimilation, the influence of peers. Universities are positioned to inquire free from the influence of "church or state" with intellectual activities regulated only by peers. Indeed, in this study faculty indicated that peers were regulating in subtle and distinctive ways beyond intellectual activities.

A subtle internal regulation revealed in this study was the quick assimilation of departmental norms and values by new faculty. Professors already have the structure of the signature pedagogy of their disciplines and quickly learn to teach like others in their department. Although it is difficult to imagine anyone saying, "This is how we teach here in this department and we'd like you teach in the same way," values, attitudes and the signature pedagogy are contagious and quickly caught by new faculty which continues and perpetuates the *status quo* in an effective way that requires no effort at all on the part of those doing the "sneezing." To my way of thinking, "sneezing" occurs when norms and values are passed along unconsciously through language and actions. A shoulder shrug or rolled eyes in response to a story of a teaching success quickly conveys the message that the listener is not interested. It is much easier to pass on something that is already in place and unconscious than it is to become conscious of the existing state, change an existing norm, and pass that along.

It does not take long at all for an individual—student or professor—to catch on to the values and attitudes of a particular academic field or department. For example, to receive the reward of high marks a student quickly learns not to bring a humanistic creative perspective to a biology exam. From their earliest

student days, instructors have already learned—and are most likely comfortable with and good at—the signature pedagogy of their chosen academic field. It was not surprising that five of the nine participants in this study had academic backgrounds in disciplines that valued active involvement in learning; the contagious aspects of the discipline had worked in favour of using active learning.

Internal Regulating

Using active learning—or focusing time and resources on teaching in general—might not only be curtailed from the outside but also from the inside by an individual's values and beliefs related to the norms and values of *the context*. Personal identity, and the identification with a particular identity, might be related to departmental norms and indoctrination into a department through initial student experiences. Internal regulating occurs through beliefs about one's self and self-identity, through beliefs about the abilities and capabilities of others, and beliefs about how one should act in a role which begs the question whether or not a person can actually become, and actively display the attributes of, something or someone who they do not believe they are. Or can a person who does not perceive themselves as a teacher become a teacher?

The way a person perceives one's self has implications for how he or she prioritizes time and resources. "Researchers" might have difficultly perceiving themselves as "teachers" making associations with others who are teachers less natural as we tend to associate most with people we believe to be like ourselves (Cialdini, 1988). By the time an individual has come to be a professor in a particular department, she or he has already been steeped in the norms and values of that field and has shown enough alignment with existing beliefs to be

allowed entrance. The individual most likely has also formed a personal image of "researcher" or "teacher." People generally do not like to go back on their constructed perceptions of themselves (Cialdini, 1988).

Guiding beliefs about one's professional identity might play a major part in the commitment to or lack of commitment to teaching in general, and active learning more specifically. Until the border has been crossed into believing that he or she is concerned, interested, or committed to teaching, there might be little opportunity for instructional change.

When we see others doing something, and we think we are like them, we are more likely to follow their examples than to think for ourselves (Cialdini, 1988). Faculty in this study felt a notable absence of support for teaching. Although policies and administration were described as "not opposed to" teaching, faculty felt that their peers did not merely demonstrate the benign neglect of policy and administration but were actively opposed to teaching. If an instructor hears or sees what others who he or she perceives to be like them are doing, then they are more likely to do that activity as well; but, if an individual feels that people who are interested in teaching are "weird" or "unusual" or simply not like them, they are less likely to follow that example. For active learning to "catch on" in colleges and universities, it might be necessary for people with formal and/or informal authority and influence to show interest in teaching to the point of being enthusiastic teachers themselves.

If an instructor makes an initial small commitment to an instructional change, then later that same individual is more likely to make a larger commitment because he or she has started to see themselves as the kind of

person who “does that” (Cialdini, 1988). Once we have set ourselves up to believe this new view about ourselves, this initial episode is no longer relevant because the belief now has its own “legs” to stand on. Although some faculty in this study indicated that it was difficult to add active learning in small ways, it might be helpful for instructors to be shown and encouraged to include active learning in some small concrete way and to make a commitment to use that small way several times to see if it works for them and their students. Working with an instructional or peer coach through this trial period might be just the support an instructor needs to integrate this new active learning strategy.

Individuals gain identity as much from who they are *not* as they do from who they are. One way of developing identity is by knowing who we are not; because we are not *other*, we are who we are. This extends to what we choose to do and what we choose not to do, and, in turn, makes non-participation a "defining constituent of participation" (Wenger, 1998, p.168). What we choose to not participate in is as relevant in forming identity as what we do participate in. Moving from one expert group has the potential to cause internal instability with one’s personal and professional identity. Most participants in this study did not move from “researcher” to “teacher.” They were interested in teaching from the beginning of their careers. They had memorable positive experiences as students that contributed to their positive perceptions of the impact of effective teaching. They believed that teaching—and effective teaching—could make a difference. The other two people in the study actually had doubts about the teach-ability of students. This perception about student ability might have colored even the

extremely positive initial experiences of one of the individuals. It might be that how students are viewed has an impact on how teaching is viewed.

The Impact and Importance of Rewards

Providing information and offering incentives for a desired action can be motivating (Poindexter, 2003; Cottrell, 2001) and might help decision-making about the use and investment of time, but when the stated objectives or goals of an organization are not supported or aligned with the reward structure, members of the organization can feel torn in the actions they take (Miller & Anderson, 2002; Probst, 2003; Wenger, 1998). Participants in this study felt that the stated values of the organization regarding research and teaching were presented as equal, but the actual rewards and the support are not perceived to be equal. Faculty perceived little external incentive to make time decisions that favoured teaching when organizational values and rewards appear skewed to research. Faculty perceptions were that the culture on campus regarding teaching was "neutral" at best, not actively discouraging or preventing the inclusion of active learning, but certainly not rewarding its use.

It could be argued, however, that active learning *is* supported organizationally in a quiet way. Faculty development is offered on a regular basis for those who wish to be involved. Policies characterized by "benign neglect" might, in fact, provide the freedom for teaching practices to evolve naturally over time. From another point of view, behaviour which is rewarded tends to increase but rewards also have a tendency to reduce internal motivation and creativity resulting in short term gain with long term loss (Kohn, 1987).

Kirkpatrick (1994) stated that rewards can be intrinsic or extrinsic. I had expected to hear more from participants about wanting more organizational rewards as indicated in the literature. The existing extrinsic organizational rewards were not deemed particularly effective or valued by participants. Faculty in this study who used active learning stated on the survey that they were primarily intrinsically rewarded and by the personal desire to improve the quality of education for students. Stories and comments indicated that these instructors felt rewarded by contact with students, the engagement of students in class, and by positive feedback from students. These could be forms of extrinsic reward as well as feedback that informed faculty they were indeed improving the quality of education for their students.

The more engaged students were the more satisfied were faculty. The engagement and enthusiasm of students was their reward. Although that might not be totally an intrinsic motivation or reward, it was a reward and motivation that I had not expected to carry so much weight. If active learning promotes student engagement and enthusiasm, major motivators for faculty, a self-perpetuating loop with everyone winning might have a definite impact on the university in the marketplace.

Informed by the findings of this study, one could infer that student enthusiasm encourages faculty enthusiasm, faculty enthusiasm encourages student enthusiasm, and student enthusiasm creates a positive buzz about a university or college which filters into the marketplace and effects student recruitment. Regardless of where the self-perpetuating loop starts, it is important that it does. The issue is who starts it—the students or the instructors?

According to participants, formal student evaluations did not carry the weight of informal feedback. Compliments work wonders especially if one *overhears* a positive comment. Evaluations at the end of term were not useful for changing teaching behaviours during the term or as meaningful as individual comments made about particular activities or classes, or getting involved in class by asking questions or participating in class discussions.

I asked one participant about changes in student evaluations when more active learning was introduced. This respondent said that the quantitative aspects of the evaluations remained about the same (strongly favourable), but students included more positive written comments on their evaluations. The individual who was not using active learning spoke more often than others about student feedback regarding teaching and frequently mentioned student evaluations. It seemed important that this class made a difference to students. This respondent spoke of students coming up to comment on how much they enjoyed their class and felt good when students enrolled in more than one of this respondent's classes. The informal feedback from students in the form of appreciation and engagement sparked the participants in this study. And what better way to engage students than by using appropriate and effective forms of active learning?

This information might be useful for changing teaching behaviours in undergraduate classes. One of the most effective ways to change teaching behaviours might be for students to "reward" the teaching they like by being involved in activities and commenting after class. Bluntly put, students might be able to change the way their professors teach by "rewarding" the teaching behaviours they want with intermittent positive feedback throughout the term,

and being more engaged in the activities they want to see more of. Student groups aware of this information could pass on the information creating a wave through the campus community for more engaged and interactive learning—if they were truly interested in receiving a more involved educational experience. As noted earlier, and similar to the findings of Kanthan and Mills (2005, 2005b, 2006), some resist being more involved because it is perceived to be more "work" but there is an overall appreciation of different strategies being used. It would be rewarding to hear of students letting their instructors know how much they value group discussions or create handouts with their peers rather than pushing for complete sets of instructor-made handouts!

Comments made in this study alluded to the notion that the more faculty interact with students the more they felt rewarded "intrinsically." Faculty could seek out more positive reinforcement by providing frequent opportunities throughout the term for feedback and by taking the time to chat informally with students as they leave class to ask how things are going.

Faculty Perceptions of Students

On occasion, I was surprised by how students were discussed by participants. Understanding that what we hear is interpreted in light of our own experiences, as an ex-elementary teacher, hearing university students talked about as "kids" rather than adult learners tended to catch me off guard! Several faculty members in this study spoke fondly of students; it was obvious that they enjoyed working with students and most of the faculty involved tended to view students as capable and interested learners–and teachers.

Notable were the occasions when faculty discussed students as irresponsible or as less than capable. Using active learning, which demands students be involved and personally responsible for their learning, might cause a lack of alignment between actions and beliefs if an instructor believes that students are not capable. This perspective was shared by the two faculty members who seldom, if ever, used active learning. They spoke somewhat disparagingly about their students; they did not trust their students to "get it" if they did not tell them what to get nor did they believe that students had the skills to engage with the material. One individual wanted to teach students how to read text material more effectively. This participant felt that students were apparently less able than they once were and that these students could not even read material from a text without guidance. They did not want to offend their students and they wanted to do what students wanted them to do. One participant in particular, as stated earlier, tended to capitulate to student demands for handouts and PowerPoint even though it was stated in the group sessions and the interview that these were not believed to be valuable. One does not know the truth. It could be that this individual was telling me what I might want to hear (active learning is wonderful and PowerPoint and handouts are nasty). I do not know what this person really thought as contrary positions were revealed over time. Ironically, both these instructors were concerned about pleasing their students and about student evaluations. On the other hand, the faculty who incorporated active learning in their personal signature pedagogies saw their students as capable and interesting, and spoke less about student evaluations and more about student engagement.

The Impact of Negativity

Two situations left me drained after the interviews and drained again when I listened to the tapes. Both individuals were negative in their comments about students describing them as "drowning," "incompetent," and "not as good as" students in the past. In both cases, these individuals had doubts about the effectiveness of active learning or were feeling pressured or burdened by teaching. Discussions in these cases were stilted and slow. I had difficulty maintaining focus and was eager to be on my way. It seemed that these individuals were putting up road blocks. I left the meeting feeling exhausted which was a contrast to the "converted" group–in perceptions and in feelings–where discussions and interviews were lively and the energy built and synergistically grew as success stories were shared. They were doing what they wanted to be doing and felt they had the freedom to exercise that–though not always receiving the support. They were doing what they wanted to be doing. At the very least, they perceived themselves to be using some degree of active learning and made very few comments that would indicate they thought they should be doing more or doing things differently. They were at ease—and easy going. They seemed to have confidence in what they were doing.

From these two more negative interviews came new insights into restraining forces. There was an element of "I should be but I'm not." Their actions were not in alignment with their own stated values. If there is a growing trend towards using active learning in undergraduate classes, then an individual might be also be "left out;" there is the potential for being out of alignment in that

way as well. I wondered about the impact of negativity in a group setting–it had been very difficult for me one-on-one.

The other individual who was fairly negative and somewhat jaded in the interview was more positive in the group setting. It could be that the tone was contagious or it was just a different day. The interview questions might have indeed "dug a little deeper" and unearthed some other feelings or perhaps there was openness in the privacy of the interview situation. In all other interviews the views presented in the group setting aligned. The other individuals were consistent across the board.

Alignment

The study was structured to allow for the deepening of stories and the revelation of possible inconsistencies over time. I chose to structure the study in this way because I had noticed over the years that the first stories people choose to share are often not the full story or even the real story, and that stories change and evolve over time and are sometimes dependent on the audience—although it might be that I only hear things differently and really listen over time. It made sense to me to design a study that took the potential for the deepening of stories into account and allowed for repeated interactions in a variety of settings (individual, pairs, and group) and through a variety of vehicles (written, oral, checklists, recorded, notes). In all but two cases, there were surprising consistencies over time. As noted earlier, stories remained consistent and, if anything, the opportunities for the retelling of stories only served to reveal an increasing consistency and integrity of the tales told. Interactions with seven of the participants were positive and energizing without being syrupy or uncritical.

As indicated above, however, two individuals in the study said one thing and did another, and then said another and did something else again. Integrity and congruency of thought, speech, and action are palpable, and, when that congruency is lacking, it is like being smacked by a wet blanket.

In the energetically-draining interviews, participants' stories were increasingly incongruent and negative. Beneath a veneer of an initial apparent enthusiasm and curious quiet hesitations lay real doubts and skepticism about the effectiveness of active learning, the abilities of students, and the trustworthiness of peers and administration. These individuals were exhausted by teaching in general.

Two points worth noting specifically are that it is important to make allowance for the telling and retelling of stories, and negativity is debilitating energetically. I came away from this study wondering if it is worth having people teaching who do not want to teach. And, I wondered if it is not more important to have alignment of beliefs about teaching and learning take priority over particular ways of teaching regardless of the perceived effectiveness of said methods. Active learning is apparently effective in facilitating learning, but is it all that effective if the instructor using it does not believe in it or think it is valuable or that students are capable? I think the methods an instructor chooses need to be in alignment with their personal beliefs about teaching and learning. A well-delivered lecture might well be far more effective than an active learning opportunity facilitated by a closet skeptic.

Faculty Development

Overwhelmingly, faculty spoke positively about their experiences with faculty development and teaching. They derived ideas from sessions and incorporated them as appropriate. They felt invigorated and enthused by their involvement in faculty development. The volunteers in the study all participated regularly in faculty development (remember that they were initially invited because of their attendance at a teaching conference) and occasionally presented sessions. The three participants who were co-opted participated to differing extents, and I am not sure of the involvement of one of the other participants. Consistent with this respondent's responses in all areas, the person who participated in the full study and was somewhat negative regarding active learning had mixed reviews about faculty development experiences.

Change Process

The process of change has been of keen interest to me throughout my career both personally and professionally. This particular innovation was chosen because it was topical and timely, had much to commend it, could be easy to integrate but was not popular, and I was familiar with it. I could have chosen other innovations but this one fit and it had not acquired a strong following like other teaching innovations like those involving technology. I wanted to know what caused individuals to make a change from a traditionally rewarded state to something less common but considered "better." In Chapter 2, "change" was defined as doing something different in the place of something that had been done previously and change models were explored. I had hoped to understand

more about change models in working with the participants in this study. How does a good idea get integrated into practice?

According to Kirkpatrick (1994), four conditions are necessary for a change to occur: one must have a desire to change, one must know what to do and how to do it, one must be working in the "right climate," and one must be rewarded for changing. The driving and restraining forces identified in this study might help others strategically plan to minimize the barriers and maximize the driving forces when encouraging change in other organizations.

Although this descriptive exploratory study provided insight into university instructional practices and changing these practices, and contributed to the understanding of what drives and restricts change with a small group of faculty members, two branches need to be explored in the area of change—the driving and restraining forces acting on the use of active learning in undergraduate classes *and* the process of change in a situation where, for all intents and purposes, there was seldom even minimal dissatisfaction with the existing situation. To that end, these two aspects will be discussed separately.

Change and Instruction in Undergraduate Classes

Michael (2007) identified three main categories of barriers in his study: student characteristics or attributes, teacher characteristics or problems that directly affect teachers, and pedagogical issues that affect student learning. He suggested that faculty development, the common solution, might not be sufficient to overcome these barriers and that teaching must become a more public enterprise that is treated like a truly scholarly activity.

As Gardner (2004) has indicated, most mind change is gradual, occurring over significant periods of time but that, when a change has become truly consolidated, it is likely to become as entrenched as its predecessor. That seemed to be the case with most participants in this study; they were not "change omnivores" who were changing for the sake of change or were caught up in teaching trends. Through trial and error and reflecting on their practice, they made choices about what worked and what did not and integrated what worked. Two participants had teaching training, but most often participants stated that they gained their ideas from faculty development and that, when they found an idea that worked, they continued to use it.

The findings in this study were also in agreement with Hodges (2006) who found that fear has an impact on pedagogical change. She highlighted three significant fears: loss, embarrassment, and failure. I also found that the participants, who claimed to use active learning but did not, indicated that they feared losing control of content coverage as students become more active in their own learning. Loss aversion was certainly more of a motivator than potential gain (Kahneman & Tversky, 1984) for at least one participant. I also saw indications that some participants feared embarrassment–looking silly or incompetent—as they learned to incorporate instructional practices. One participant feared judgments made by colleagues and students, and a possible loss of respect. Both participants who were not using active learning indicated that they feared that, if they used active learning, they would lose the ability to convey concepts successfully, to resonate with students, or to be perceived as experts.

There are many demands on a professor's time—meetings, marking, committees, phone calls, and supervising graduate students. Pedagogy is not part of the college vernacular and the role of "teacher" might not be the first on a list of priorities for some professors. With just so many hours in the day, critical decisions are often made by default about how to allocate one's resources of time, energy, and space.

Geographical Presence

When I was conducting an individual interview in one of the professors' offices, my attention was drawn to the stacks of things around office and the number of phone calls handled in the 45 minutes I was there–three. Each of the stacks represented an aspect of the professorial role as did each of the phone calls. There was no phone call about teaching. There was no stack related to teaching (although I imagine there are stacks to do with *what* was being taught as well as marking). In this office, there were no demanding physical attention-getters for pedagogy.

Attention to pedagogy is not time-sensitive, nor does it take up office geography. Pedagogy is not on the map in the same way as a thesis to review, a conference to prepare for, ethics proposals, or notes for up-coming committee meetings might. Pedagogy does not have a stack on the desk; it is lacks physicality. Nothing catches the eye as a reminder of the importance of teaching and it is not like a conference, a meeting, or a class might be. There are no deadlines for integrating active learning as there might be for submitting an article, submitting final marks or reviewing an ethics proposal for an upcoming meeting.

Pedagogy and the Vernacular

Pedagogy is not generally part of the vernacular of the college professor; it is not part of the daily interactions. If integrating active learning were a fitness program, it would fail miserably–there are no swimsuit seasons to get fit for. It is carried out in relative privacy; seldom are their companions to jog with, fitness and thinness are not obviously valued in this community. It is difficult to measure progress. There is not a hefty support system, and the rewards are few and fleeting. And (other than your students who would rather *not* see you in a swimsuit) no one ever sees you in the swimsuit anyway.

Integrating active learning for the individuals in this study was an additive progressive integration resembling a lengthy experiment that required time to learn about new methods, to try them, and to make choices about what to include and what to leave out most closely resembled the description given by McManus (2005); he explained that he began changing his teaching by gradually making small incremental adjustments to his teaching. The findings in this study differ from those of McManus (2005). My participants tended to find an aspect of active learning that met their needs. They then tinkered with it but remained consolidated in their approaches without moving too far from the pedagogical norm of their disciplines.

Time Challenges

Lack of time is definitely a stated problem. A participant pointed out that departments and, hence, faculty, might need to dramatically reduce the amount of "administrivia generated by the *soi-disant* senior administration" (N510). Time is a precious commodity to the university professor who has many facets to

his or her role, and it takes time to integrate active learning. The point was made that considerable time was needed to generate a small amount of research, but that a big change could occur in one's teaching with a small effort. Teaching is seldom time-bound like writing an article or attending a meeting. According to at least one participant, teaching is like an experiment, an academic activity done in the spirit of inquiry. From the findings in this study, however, I doubt that giving more time is the answer; it might be necessary but not sufficient. These participants were incorporating active learning without "more time" available to them.

Although we can never "see" a decision, we can infer from observable behavior that a decision has been taken which is significant in considering the time factor. People have made a decision that we can see through their actions of applying their resource of time to an area. If they are using active learning, they have made a decision to do so.

Increasing the Potential for Positive Experiences

Most participants had positive experiences with active learning specifically and teaching in general, and in general they believed that active learning was more effective than other forms of teaching, but faculty did not *observe* the effectiveness of "active learning" personally. They wanted more evidence on the effectiveness of active learning. That said, they went on to give specific examples that indicated that when active learning strategies were integrated to address specific difficulties of students and then faculty noticed that active learning was effective.

It might be important that faculty are guided to integrate specific forms of active learning well-chosen to address specific identified needs with a planned way to assess the effectiveness of that intervention. The more concrete the problem and the more specifically chosen the intervention is to address the problem, the more effective "active learning" might be perceived to be; addressing a specific and targeted problem increases the potential for a positive experience.

Creating a Positive Vision

One of the biggest restraining forces might be not being aware of what is pedagogically possible. If you believe that "you already have it figured out" or that you are already teaching effectively, then there is no reason to be open to new ideas. When this is combined with feeling *content-proficient* and *teaching-hesitant* (or unsure or lacking confidence) in a climate that values content over teaching, why would anyone seek out new information on teaching when things are generally "okay?" When teaching specific strategies at workshops and other faculty development opportunities, it might be beneficial to introduce these specific strategies in the context of the range of possible strategies along with a continuum of strategies ranging from least to most engaging and "active."

Insights on Change in General

Most change literature looks at change as a process others are required to undertake. That is not the case with instruction at the post-secondary level. Although there is increased emphasis on effective teaching at the post-secondary level, professors have not been *required* to change their instructional practices. Participants in this study could have continued to teach in the same way, but they

saw a need to change to make concepts and the learning experience more clear for the students and they had timely information that would solve that problem. For the most part, individuals in this study had established the challenge and the reasons for change for themselves; they had changed their instructional practices for their own reasons and at their own pace.

Unlike collegial involvement in research and publications, collegial involvement in teaching is often lacking. One individual, however, was required by a senior colleague to use a different strategy. The colleague then spent time in the classroom and encouraged the use of this strategy. Personal experience with the strategy and on-site encouragement and accountability might have helped that strategy become integrated into this respondent's teaching practice.

Subtleties came to light as I reflected on the data and compared what I had found with the literature I had read on "change." It seemed that the process for most of the participants in this study was "renovation" over time rather than an abrupt departure from what they had been doing to doing something new, this is a concept that Dr. Kanthan and I introduced in our first article (Kanthan & Mills, 2005). Participants had come up through their disciplines (which I assumed they had chosen because they resonated with that discipline) and used the pedagogy of that discipline, modifying it rather than changing it when "perceived need" and "new information" converged in a timely fashion. It was as if they bought a house and continued to renovate and add on but never tore down the house or moved, and they certainly all stayed in the same neighborhood. From the stories they told, or how I interpreted those stories, not one of the participants had drastically altered how they taught. Their portfolio of strategies had developed gradually

over time to become their personal signature pedagogies. There was a feeling of comfort and ease from the majority of participants who were true proponents of active learning as they told their positive and enthusiastic stories. Among the participants who enjoyed teaching and had developed personal signature pedagogies gradually, I didn't find the anxiety I was expecting. Why not?

Subtleties of Change

It has been my observation that organizational change literature is primarily directed at externally-driven change rather than personal and internally-driven change. At the university, there are few if any external motivators or impositions to improve teaching. Most participants in this study *chose* to make instructional "renovations" over time; these were not externally driven changes—they could have kept on doing what they were doing with no negative consequences. As observed earlier, there are few, if any, rewards for improving teaching; in fact, the more time one spends on teaching is time spent away from research that brings rewards. Bluntly put, university students are able learners who have chosen to invest their time and money into their education and most are able to succeed regardless of the quality of teaching.

Faculty in this study saw that learning experiences could be more effective for students, but why bother improving teaching when the brightest and the best will do what they need to in order to "pass" the test? If "passing" is the measurement of the success of the institution, then perhaps there is no reason to encourage (or even give lip service to) active learning. Students know how to learn on their own. If they have the materials–and each other, they might very

well succeed without good teaching--active learning or not. These participants did not *have* to make any changes at all.

In the university setting, faculty members have a fair degree of autonomy. Participants pointed out repeatedly that they believed university policy to be, in the area of teaching, neither encouraging nor discouraging. Support was available for faculty development but it was not mandated nor was it prescriptive. Participants in this study had changed their practices for their own reasons at a personally agreeable pace as they chose on their own time lines. Some participants found working with students and focusing on teaching to be a welcome diversion from the rest of what they did. Their instructional practices evolved as they integrated new teaching ideas that addressed needs they had personally identified.

Adding more active learning to instructional practices in undergraduate classrooms is not a mandated change. Much of the organizational change literature deals with large-scale mandated organizational change. However, instructional change is not mandated in this setting and professors can focus on whatever they like—especially when tenured. In some ways, university faculty are organizations unto themselves so when these individuals perceived a need, they had the freedom to make small changes that were in line with their beliefs and discipline. They were not so much "dissatisfied" as they were experimental.

It *might* be that change is complex. Although it seems that a confluence of factors occurs to instigate change, change might also be more linear and gentle than it is generally described—when it is internally motivated. In fact, in this study participants generally indicated no "trauma" or difficulty in doing things

somewhat differently (other than the individual who was told to include the Socratic Method and was observed doing so). They indicated that alterations to their teaching practices were internally-driven based on a "perceived need" rather than "dissatisfaction." Teaching was part of what they did but not the main focus or their reason for being there; most participants seemed passionate about their disciplines and discovery, and their interest in teaching felt the same. When I was working medical residents, I found them to be passionate about learning and generally had several areas of interest. They were not just interested in medicine; they were people who were interested and curious all round. I had a similar feeling with the faculty members involved in this study. They were interested in teaching *and* they were interested in their disciplines and in faculty development and committee work and being involved on campus in a variety of ways and in taking on leadership roles and instructional technologies. These people were interested, curious people, and active learning and teaching were among their interests.

As stated earlier, these individuals did not seem to have someone else guiding their renovations. These renovations seemed to happen in privacy (as much as teaching is ever private) without someone else instigating or guiding the change. In many ways, professors are islands unto themselves...they do things in isolation and have a fair degree of autonomy. Whereas faculty might have collegial input into research and publications, they do not very often have collegial involvement with their teaching. The participants in this study chose what they were going to do and then did it. Actually I think they just did what they wanted to do to solve a personally identified perceived problem. There was

an organic feel to what they described. A perceived and personally-identified problem was met by a possible solution that fit both the problem and their existing instructional framework of beliefs, values, and experiences.

Instructional "Renovation"

My "change" model is, in fact, a model of gradual "renovation" over the span of a career. I wonder if assisting people interested in "renovating" their teaching practices as they identified a need is more appropriate than encouraging or expecting them to "change" how they teach based on outside expectations. For those involved in faculty development, perhaps it is more similar to helping someone renovate their home—helping to develop what already exists—rather than convincing them that they need to buy or build a new house from the ground up. Once someone shows us their house we can help them renovate and be architects of additions and upgrades rather than of new houses. Might be all they need to meet their perceived needs is a dishwasher, but it might also be that the house needs a new furnace or insulation or windows. It is important that the renovations meet perceived needs and are a style match. As Bridges (2008) counseled, it is foundational that the challenge, the problem, or the opportunity is established in someone's mind before trying to make a change to meet that challenge, solve the problem, or seize the opportunity. For the most part, individuals in this study had established the challenge for themselves.

Dissatisfied with "Dissatisfaction"

I do not agree with Tichy (2000) concerning the word "dissatisfaction." I think that is an unfortunate and misleading word. I suppose I would put in new windows if I was dissatisfied with freezing in the winter but I might also do

scheduled maintenance to keep up the investment—like repainting the exterior the same color just because it is starting to peel or rearranging furniture to better suit my needs or give greater pleasure. It might be that "dissatisfaction" is appropriate when the situation is dire and dealing with survival/hygiene factors, but when there is choice and nothing dire will happen as a result of action or inaction, then "perceived need" might be a more apt description.

Implications for Further Research

I felt that the research methods used in this study revealed a deepening of stories and perceptions of the participants; however, upon analysis and reflection on the findings I would like to return to the same participants and continue the conversation. In addition to a continuation of this study, there are several further research studies I would like to encourage. I believe that further research into personality types and learning styles of faculty using active learning might show that interested, curious, "go-getters" see being successful educators as another thing to "go get."

More research could be done on the effect of student satisfaction and engagement on instructional change in undergraduate classes to see if students could actually change instructional practices through positive comments made to professors at the conclusion of classes.

This study has pointed to a connection between student satisfaction and engagement and faculty satisfaction and engagement. More research could be done in this area.

Research could be done on the effects of external rewards on the inclusion of active learning.

Further study could be done on the perceptions of faculty regarding collegial support on the integration of active learning.

As individuals of influence are seen as “teachers” as well as leaders and exemplary researchers, study could be conducted on the effects of this influence on others.

This study revealed that the values and beliefs of the individual had the greatest impact on the integration of active learning. It would be interesting to know if that is the same for the other scholarships.

Research could be conducted into removing the barriers identified in this study. Research could also be carried out into increasing the driving forces identified in this study.

Participants shared a perception that active learning was effective yet they also indicated that they would like to know more about the efficacy of active learning. I found that somewhat contradictory. More study into this contradiction could be done.

More research could be done on mandating the use of active learning—and providing the support, ideas, and materials to do so—in classes with multiple sections to see if the choice to use active learning increases after having to use it and having the support to do so.

More faculty could be involved in a study such as this, creating communities of practice on campus, encouraging conversation about teaching among faculty, and extending the findings of this study.

In a longitudinal study, engage new faculty to learn how instructional renovation begins and carries through their careers. This might have the added advantage of encouraging communities of practice among newly engaged faculty.

Mentoring relationships could be encouraged and the effects of these relationships on the integration of active learning could be studied.

Implications for Practice

I this section I offer two categories of implications: implications for encouraging an interest in teaching in general and implications for encouraging active learning specifically.

General Implications

It might be important to limit the impact of the restraining forces of peers (and students). Limit the opportunities for faculty who are not teaching-oriented to "rain on the parade" of those who are and increase the driving forces by creating times and places where faculty know they can meet with like-minded individuals to share success stories about strategies that have been inspiring and effective.

Instigate more comprehensive faculty development opportunities that include on-site instructional coaching. When the College of Medicine made it known that I was available for coaching with interested faculty, and although the response was not over-whelming, the individuals who chose to work with me have made what appear to be significant changes to their teaching practices. In addition, they have also increased their scholarship in the area of teaching as evidenced by further graduate study, publications, and conference presentations.

I have also seen the contagious aspect of coaching take hold in a department corridor.

Encourage senior prominent well-liked faculty interested in teaching to become informal mentors and spokespersons, sharing their enthusiasm and zeal for being truly engaged and interested in teaching and students. New research from social psychology suggested that when "risky behaviour" was linked with a group of people that the targeted audience did not want to be confused with, the risky behaviour demonstrated by the targeted audience decreased (World Science, 2008). I believe this has significant implications for post-secondary teaching. If teaching is linked to a group that people do not want to be confused with, then it might be that teaching is valued less than if it is linked to a group of people with whom others *do* want to be confused; link enthusiasm and good teaching with successful well-respected faculty.

Continue to maintain the "don't get in the way" policies regarding teaching. It seems that a neutral environment is conducive to the development of personal signature pedagogies, over time. In this way, teaching proficiency develops naturally and in an integrated way with other aspects of the professor's role.

Several significant discoveries were made in this study that might help others better understand the change process. Although the change literature is rife with techniques to overcome resistance and have others change their behaviours to better align with organizational directions for effectiveness, from the data in this study, I see two different sets of approaches—one more common than the other. Before sharing the less common set of approaches, the actions

that can be taken to encourage more engagement of faculty in including active learning will be shared.

Encouraging Active Learning

If active learning is presented to faculty using the language and norms of their own disciplines into which it seeks entrance, it will likely take root more easily. Relating active learning strategies to specific disciplines and to common needs regarding student learning might both honor the existing methods an individual uses and help to renovate those existing methods in a logical way.

Positive feedback and interactions with students are reinforcing for faculty. Therefore, encourage faculty to seek out feedback from students frequently and encourage students to compliment their professors and be active participants in class. Invite students to submit stories about *activities* they enjoyed in their classes; focus on the activities rather than the instructor.

With active learning, the focus changes from the instructor to the activity and students. To continue to only award individual instructors limits the potential for organization infiltration of active learning activities and methods. The discouraging notion that "I can't become award-winning *Professor X*" can be replaced with "I can use award-winning activities and methods if I know about them…."

Organizationally, when hiring faculty, ask candidates to share a teaching experience. People who like teaching and value it become animated with enthusiasm when they tell a success story. Use that as information regarding passion for teaching.

Align organizational rewards with stated values. Participants suggested the implementation of “teaching chairs” and time away from research to focus on teaching and course design.

Continue to offer faculty development sessions and add instructional coaching. Provide instructors with just-in-time assistance through instructional coaches who can make themselves readily available to fit the instructors’ schedules.

Speak positively about teaching experiences. Start urban legends of awesome classes! “Did you hear about....?” Build in time for sharing positive teaching stories in department meetings.

Recommendations for the Integration of a “Good Idea”

From the analysis of the data, I would recommend to organizations and individuals who wish to increase the use of active learning, specifically, in undergraduate classes that active learning strategies to address specific student learning problems be introduced in a timely fashion and that strategies are clearly related to observable needs.

Provide support in real time through one-on-one coaching.

In faculty development sessions, introduce strategies in context of all that is available, the specific needs that specific strategies address, and provide a continuum of least to most engaging and active. Recalling that faculty members in this group developed their personal signature pedagogies in a setting of benign and benevolent neglect, go with the goers and support and reward them sufficiently; do not make active learning (or even a focus on effective teaching) mandatory.

Teach professors how to think like teachers. Participants felt that it was important to have time to do the teaching and the preparation for it, that it was imperative that teaching was genuinely valued within the organization, and that engaging with other faculty could raise levels of awareness and enthusiasm. The convergence and interaction of conditions, beliefs, style, need, and relevant information was also a recurring theme. Most participants were including active learning even though the very elements they felt were driving forces were not present for them. Encourage, support, increase, uncover, or create personal drivers by valuing individual differences and believing in the efficacy of the professoriate. After Wenger (1998), encourage communities of practice and provide faculty with opportunities to exchange ideas and success stories with others. Offer faculty development opportunities that address wide-ranging concerns from awareness to refocusing and providing ways to share with others. Faculty might be reassured in their risk-taking if there is even more research supporting the inclusion of the good idea. Provide more irrefutable, rigorous research that might guide faculty towards integrating the good idea in their teaching.

Participants speculated that a culture favourable to teaching would have special places for people to gather and talk about teaching, scheduled teaching rituals, positive teaching experiences would be discussed more often, and people would use teaching-friendly language. As much as possible, introduce opportunities for these elements to be more obviously present in the academy.

Intriguing Insights

The other layer of findings pointed to an evolution of teaching styles over time that was gentle and intrinsically rewarding. In this study, I found that in an environment that provided un-pressured freedom to explore and access to quality faculty development and autonomy, individuals who valued the experimental process of instructional renovation did so with no external rewards. I would recommend that those who are not comfortable with teaching are not pressured to do so, but rather are encouraged to do what they do best.

As indicated by several studies cited earlier, teaching and research are *not* automatically reinforcing and to continue to perpetuate the myth that a good researcher can just as easily be a good teacher is frustrating and counterproductive. Let the good researchers and writers flourish in those areas while continuing to provide the resources for the good researchers and writers who also have a personal bent for teaching. Although a university full of excellent teachers might be desirous, it is neither realistic nor necessary; our students are capable learners with direction and motivation that will eclipse less-than stellar teaching.

Be trusting in the knowledge that a person's focus naturally changes over the course of a career and be ready when faculty members enter the portion of their careers when they are ready to give back in the form of teaching. In an environment that primarily values research, grants, and writing, use what we know about career and life stages to allow for the gradual evolution of quality teaching.

Be honest about priorities and align rewards. Decide what kind of university you want to be and hire accordingly, but do not pretend to value teaching and research equally when they clearly are not. It is confusing and contributes to negative feelings.

Finally, encourage positive talk about exciting teaching moments. Change the language, lexicon, and metaphors that surround teaching from "loads" to "opportunities" and from "have to" to "want to," and introduce contagions for change by highlighting enthusiastic teaching.

Convergence, Confluence, and Conclusions

Based on the findings of this study, in order for instructors to change how they teach, there needs to be a confluence of timely factors. As noted earlier, including more active learning in undergraduate classrooms is not time-bound. There is seldom pressure to include more active learning by a certain date. Active learning most likely does not occupy physical space in an office; it is not "geography–bound." There are most likely no stacks on the desk calling out "address me!" with regard to teaching. There might not be the social proof, or enough people engaging actively in instructional renovation that an instructor might feel similar to, to warrant belonging to this group of people who enjoy teaching. The classroom is an isolated place so there is little chance of an instructor wandering by and happening to see active learning strategies taking place in the classroom of a perceived leader. Hearing about it is one thing, but actually seeing it and experiencing it is another. Most participants in this study had some memory of at least a highly sensory experience if not an active learning one.

In the academic community, there is autonomy and perhaps a degree of isolation that comes with that autonomy. People have disparate areas of expertise. Gathering together to discuss the common (and perhaps private) practice of teaching might not be part of the common lexicon. With the not-so-uncommon view that teaching does not command a high status on the campus, chances are few that people will be rushing out to improve their teaching "just because." While this might be changing on this campus, people in positions of leadership might not be modeling active learning in a visible way.

At one point in writing this dissertation, I believed that the greatest barrier to active learning in undergraduate classrooms was a non-supportive culture that viewed "teachers" as "other;" teaching was simply not seen as the main function of "university professor" but was merely an adjunct to a more popular aspect—that of the creation of knowledge through research and discovery. At another point, I thought that teaching just wasn't "sexy" enough compared to technology and new gadgets that have a tangible definite cost. I also wondered if the greatest barrier to including more active learning in undergraduate classes was that it has no landmarks or reminders—it does not take up office space, air time, or ring the phone off the hook. Teaching simply does not demand attention like other aspects of a professor's role; a wheel that does not squeak does not get oil. Perhaps it was that people in respected positions of authority were not known as teachers first, but it might be that the greatest barrier of all is that perhaps a stimulating well-delivered passionate lecture is by far the most motivating and engaging form of teaching that exists. We might not actually *need* active learning in undergraduate classes regardless of its perceived benefits. Our students are

proficient learners. A well-delivered lecture infused with an obvious passion for the topic and rigorous enthusiasm might well be the style of teaching best suited to the situation, the learners, and the faculty. A gradual renovation might be congruent with one's values and the beliefs that form the foundation for the discipline one chooses and one's personal epistemology.

From the findings of this study, I believe the confluence and convergence of various forces contribute to the use of active learning in undergraduate classes, and that no one force or factor is sufficient. In Chapter 2, I offered a model to represent change in instruction in undergraduate classes. I know believe that in a benignly neutral setting, the personal qualities of confidence, an inquiring spirit and the desire to be an effective educator, a pressing problem related to students, and timely information that is a fit with both the epistemology of the individual and the discipline are all necessary—but not individually sufficient to instigate the use of active learning. Although the focus in this study was on the driving and restraining forces acting on the integration of active learning in undergraduate classes, I suspect that active learning was simply the answer to a pressing problem. It might be that the factors of desire, pressing need, and "familiar enough" timely information are necessary for any change to take place in any situation. And it might be that positive feedback and engagement from students was the cement that held the curricular innovation in place.

My re-conceptualization of the driving forces based on the findings in this study is presented in Figure 6.1. From the initial framework presented in Chapter 2 in Figure 2.6, the size of the box of each of the categories in Figure 6.1 illustrates the size of the force each of the factors had on the integration of the

innovation. The Context exerted far less of a force than I had believed than it would have. The qualities of the innovation did not keep any of these individuals from using it. By far the largest force acting on the integration of the innovation were the values, beliefs, and experiences of the individual.

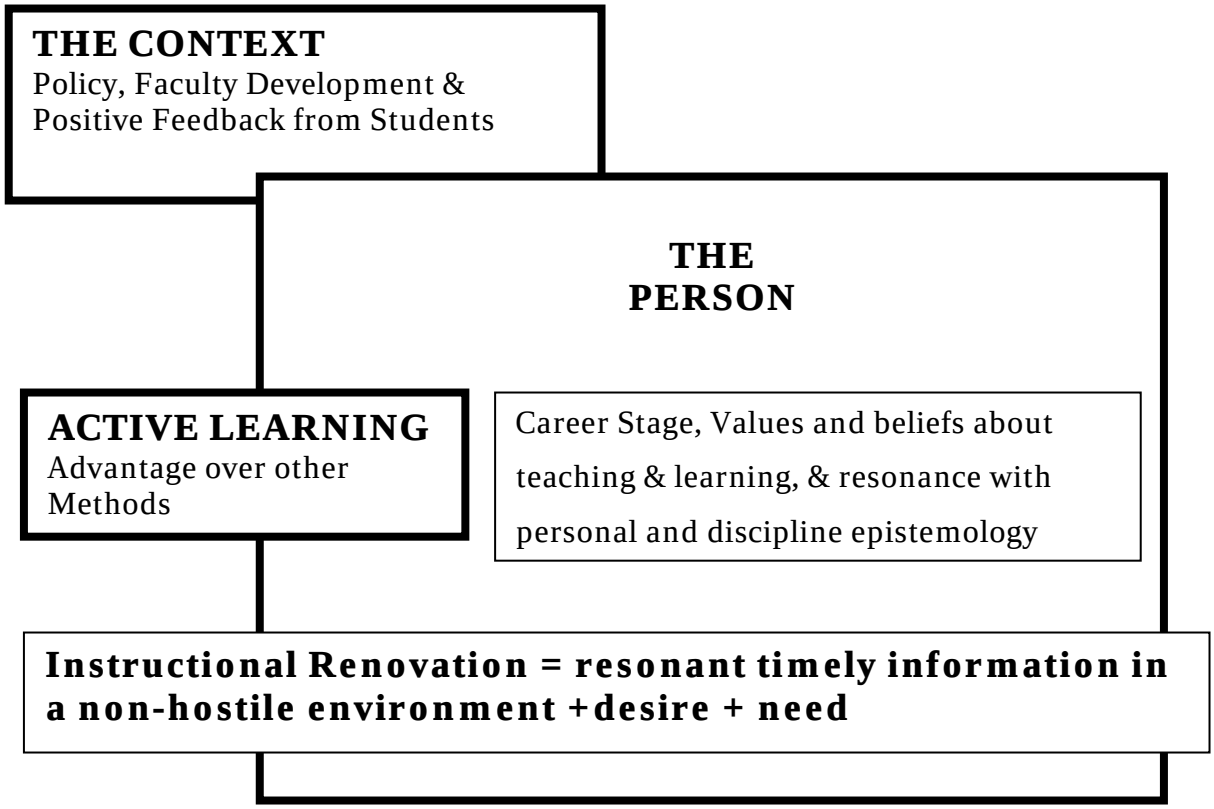

Figure 6.1. The re-conceptualization of driving forces.

As stated in Chapter 2, I had gathered from the literature that context played a much larger role than what this study revealed. Proportionally, from my understanding of the literature I had reviewed, it appeared that the qualities of the *Innovation* were a greater factor of influence on implementation than was the *Person*. As illustrated by the size of the box in Figure 6.1, the findings of this study indicated that, by far, the largest driving force in using active learning in

undergraduate classes was the individual instructor. The values, beliefs, and experiences of the individual instructor provided receptive ground for the confluence and convergence of factors taking place in a timely fashion for the inclusion of active learning in undergraduate classes. When an active learning strategy provided an answer to a problem in a way that fit with the individual's (and the discipline's) epistemology, it became absorbed into the individual's personal signature pedagogy. If it did not fit or solve the problem, it was either not implemented or quickly abandoned.

In this study, the stories of participants revealed that the integration of active learning occurred when, in a neutral climate, there was a personal desire to address a perceived problem, there was access to timely information, and they felt rewarded by the engagement and enthusiasm of their students.

Summary of Chapter 6

Chapter 6 offered discussion about the findings of this study, recommendations for encouraging active learning in undergraduate classes, and ideas for further research. The chapter concluded with two summarizing figures re-conceptualizing the process of instructional renovating and evolution, and the relative importance of the driving forces acting on the integration of active learning in undergraduate classes. Chapter 7 provides other aspects of my research agenda that contributed to the ways in which I came to understand the integration of active learning in undergraduate classes. The Epilogue shares personal insights and reflections on the process.

Chapter 7

INTEGRATION

Introduction

Chapters 1 through 6 presented the central study of this dissertation portfolio. As data and findings from this study indicated, nothing happens in isolation. The richness of insight presented in this dissertation portfolio is a result of a confluence of experiences and perspectives. Throughout my research program, I coached others as they incorporated active learning (Appendix A), was involved in the university's teaching and learning initiatives (Appendix B), and used active learning in my own undergraduate teaching. Although these three areas were not formally studied, any one of them was certainly worthy in its own right. Each area provided a perspective unique and distinct from the perspectives of any other area.

As promised in Chapter 1, Chapter 7 provides additional information, both peripheral and integral, regarding my involvement in the university community in the six years of my program. In this chapter, I share insights gleaned from my experiences with instructional coaching, the findings of *The Teaching and Learning Foundational Document* (2008) related to my study, and reflections on my own teaching.

Involvement in the University Community

> *Every so often, life presents a great moment of decision, an intersection at which a man must decide to stop or go; a person lives with these decisions forever. (Kurson, 2004, p. 84)*

The focus of my doctoral work was a natural extension and intensification of my interest and extensive background, in instructional strategies and instructional change. The metaphors of "adding on" and "renovating" describe my career. Every professional role I've had (teacher, vice-principal, school effectiveness consultant, consultant, facilitator, writer, instructor) has drawn on the basic skill set I started with as a substitute teacher at 19. Not unlike the participants in this study, I have tinkered with that initial skill set.

My involvement in the university community took many forms from 2002-2008. I was living and breathing active learning in the classrooms and careers of others as well as continuing to teach my own undergraduate classes in the College of Education. The next sections focus on my involvement in instructional coaching, *The Teaching and Learning Foundational Document* (2008), and my own teaching.

Instructional Coaching

For several years, I was a more familiar sight in the College of Medicine than I was in the College of Education. The College of Medicine generously provided me with a comely scholarship, an office, and administrative support. I was involved in several different activities in that college. I gave workshops on active learning through Instructional Support and Development, conducted focus groups with medical students and heard what worked for them in their classes, contributed to documents, and, most notably, I acted as instructional coach to one professor over a four-year period. I was an action researcher. I had a significant first-hand experience with the effectiveness of instructional coaching in the integration of active learning in undergraduate medical education. Over

that time, this individual became a teaching advocate and the "go to" person in her department.

Coaching sped up the integration of active learning considerably. For others who might wish to use coaching, certain things contributed to the effectiveness, longevity, and productivity of our collegial relationship. We were a great team, exemplifying several of the attitudes and skills of consistently winning teams (Mills, 2007). We had *chosen* to work together. We had a sense of intellectual camaraderie and the chemistry to value each of our contributions as we worked together; she learned more about teaching and I learned more about pathology and the scientific method applied to research and article writing. We practiced emotional control, and were committed to our relationship and projects equally—hallmarks of cooperative learning (Mills, 2003). We were both confident in our skills and abilities, and worked in a relaxed manner that used our unique strengths. We went after the "rebounds," using our articles to create posters and workshop presentations. We also recovered quickly. If an article was rejected by one journal, we sent it off to another. We used our resources to the maximum and creatively.

For a faculty member, working with an instructional coach is the difference between doing all the work on your house alone or hiring in a contractor. If you have a clear direction and you are open to professional input, then the work can go much faster with a contractor. This faculty member was just that sort of person. She had a clear direction; she knew what she wanted and she knew I could help her get there more quickly. She was open to new ideas, straightforward discussions, and concise feedback. And we got along famously!

Often her colleagues would check to see what all the laughter was about as we worked.

As indicated earlier, due to the generous scholarship support of the College of Medicine, I was available and flexible so we could work with her schedule. We also set specific times to meet and it was a priority for both of us to schedule time together. We quickly learned that we both needed time over coffee to catch up before we began the more technical aspects of the projects we were working on. We recognized the effectiveness of instructional coaching and both benefited from the experience.

The Scholarship of Teaching

I learned several things about integrating a good idea through acting as an instructional coach that I did not through the core study. From working intensively with one faculty member over a number of years, besides seeing active learning strategies take hold in her classes, I also saw how the scholarship of teaching develops over time. We used action research over the four years. We reflected on how different strategies worked and made adjustments or pose new questions. For example, we noticed that what worked effectively for one group might not always be effective for another group. To better address student learning preferences, we turned to information on learning styles and multiple intelligences to better connect with the students. This interest later developed into an article, then a poster, and then a workshop presentation as our professional relationship evolved.

I spent many hours observing Dr. Kanthan teach, and we spent hundreds of hours together discussing teaching and active learning, applying our insights

and findings in a scholarly way in articles, posters, and presentations across the country (Appendix A). As a way to organize and share the exciting in-depth explorations we were undertaking in her undergraduate medical education classes, we co-authored four articles. We also presented posters at medical education conferences and facilitated two workshops at higher education teaching conferences. Our proposal to present a workshop at an up-coming medical education conference has been recently accepted. One of our goals was to present a workshop at one of these conferences. Together, we were, and still are, actively engaged in the scholarship of teaching.

Instructional Coaching for the Integration of a "Good Idea"

As noted in the literature review, coaching has the potential to provide the *right climate* as well as assisting the individual learn *what to do and how to do it*. Coaching assists change at a fundamental level, transfers learning into practice, and solidifies the new practice (Joyce & Showers, 1982; Menges, 1987; Meyers & Gray, 1996; Whitworth et al., 1998; Wlodkowski, 2003). It has been my experience that coaching benefits both parties. Over time, I shared a wide variety of teaching strategies, ways of planning, and evaluation techniques.

I found out quickly that small steps were crucial to keeping the renovations manageable. Where I might be tempted to rip down the whole house and put up one like my own, this was not appropriate. I had used the metaphor of instructional renovation to describe the addition of active learning strategies in her undergraduate medical education classes. We later included this metaphor in one of our articles (Kanthan & Mills, 2005). We moved slowly, adding more and

more active learning, designing courses to include a wider variety of assessment and evaluation methods, and increasing student ownership and responsibility.

Dr. Kanthan wanted to know the language of teaching. She was an avid researcher and learner. She seemed to understand that the language held the key to understanding the discipline just as surely as her first-year medical students needed to know the language of medicine to become effective physicians. Rani's teaching, and her thought processes regarding teaching, changed over time. In the same way that first-year medical students needed to specifically learn discipline-specific terms, so did Rani. I often would throw out a "technical" teaching term. We'd discuss that and I'd pass on reading material. She learned how to think and talk like a teacher.

I saw, while coaching, the day-to-day routine of a busy faculty member, and how she was able, because of her drive, desire, and determination, to "fit in" time for learning more about instructional practices. She is a curious individual and keen to learn. In addition to her personal drive, the College of Medicine was involved in the accreditation process—there was a strong and persistent external drive to improve instruction. The context was insistent and supportive but not prescriptive, the individual was enthusiastic, motivated, and interested, and I was available to provide timely technical assistance and support. While remaining open to serendipity and our personal needs, the learning environment was joyful, productive, and goal-focused. A good idea was integrated.

Teaching and Learning on Campus

A close cousin to the synergy of confluence is serendipity. Unbeknownst to me, this university had begun the development of the *Teaching and Learning*

Foundational Document (Appendix B) as I was developing the proposal for this study and working with Dr. Kanthan. As luck—and appropriate expertise—would have it, I had the privilege of sitting on the steering committee as the Graduate Student Representative throughout the development process. As Darling-Hammond (1998) indicated, "neither a heavy-handed view of top down reform nor a romantic vision of bottom-up change is plausible...policy makers need to understand that policy is not so much integrated as it is reinvented at each level of the system" (p. 646). At various stages in the development of the foundational document, the University encouraged the involvement of the academic community. I was privy to the initial findings from the data gathering, and observed and participated in the gradual "unveiling" process designed to reify the document within the university community.

The University carried out extensive information gathering sessions involving its communities in the development of the foundational document for teaching and learning. Where my study went deep, the University's study went wide including students, sessional lecturers, and faculty in its series of one-time focus groups. The development of that document spanned several years with long breaks between meetings—not unlike the development of my own study. Although the draft of the document came out in spring 2008, the information was gathered from February to May 2006. The focus groups and meetings with students, instructional staff, and faculty conducted by the university between February and May of 2006 revealed information similar to that which the participants in my study shared—effectively raising my study's sample size from nine to 259.

Reflections on Methods

In my study, having participants share their stories in a variety of ways, at various times, and in different settings revealed consistencies and inconsistencies. The inconsistencies were the most interesting to me. Had there only been a single group meeting or a single survey, as was the case in the University's study, I don't think these inconsistencies would have become apparent. For example, had there been a single meeting I might not have learned how faculty members *are* rewarded and feel valued (by student engagement and positive feedback). I might not have discovered that teaching was generally intrinsically motivated or that instructional practices evolved over time through experimentation. I might not have come to understand that, although restraining forces warrant consideration, they do not stop those who want to do the best they can for students from curricular innovation. I was led to believe that the driving forces were much stronger than the combined power of the restraining forces. I suppose asking proponents of active learning was "stacking the deck," but I wanted to know out what might have caused curricular innovation, not what prevented it.

When asked directly, faculty in my study shared recommendations similar to those shared by the larger group surveyed for the teaching and learning document, but they had focused on teaching and were using active learning *without those recommendations in place!* This group was using the innovation without the recommended driving forces and in spite of the perceived barriers. It might be that those recommendations are not necessary for the implementation of this innovation. I believe that to be one of the most significant aspects of this

study. It might be that actually implementing those recommendations will have no impact on teaching and the use of active learning in undergraduate classrooms whatsoever given that participants in this study had integrated active learning without those elements in place. That warrants further research.

According to the study, students felt that teaching on campus was "good," but could be better, and they wanted "to be intellectually challenged and engaged in their learning" (Appendix B, p. 16). Discussions with faculty and instructional staff revealed an overarching theme concerning the lack of "perceived value of teaching within the University" (Appendix B, p. 17) which was consistent with my findings. The recommendations from the University's study (Appendix B, p 18-21) were not dissimilar from the some of the themes revealed in my study but they stopped short of the deep rich subtleties my study revealed. I think these revelations and refinements are due to the research methods I used.

Insights from Committee Involvement

Over the years I was involved as the Graduate Student representative on the Steering Committee for the development of *The Teaching and Learning Foundational Document*, I was fortunate to be invited to many meetings and hear the perspectives of faculty from across campus. I was struck by the dedication of faculty members and the seriousness with which they undertook this project. I was also struck by how foreign teaching was to some of the individuals involved.

"Teaching" is my profession and the language I speak. I grew up knowing I was going to be a teacher. Teaching is what I have practiced and taught to others for 32 years. It is a large part of who I am. I did not get the sense that it was the

same for others in the room. What I *know* is not what they know. If anyone else would have started talking about their area of expertise, I would have been lost. I had the feeling that if I started talking about my area of expertise they would have been. This is not meant as a judgment; it is simply an observation. It reinforced the importance in my mind that in order to practice and learn more about something, being familiar with the language is crucial. For faculty development, I think active learning strategies are best introduced in relationship to a unique learning or instructional "problem," and that the language of teaching is intentionally introduced. Like a traveler to a foreign country, it is important to learn the key phrases first. We might want to consider borrowing ideas from second-language instruction for faculty development and coaching regarding teaching in general.

My Own Teaching

I began teaching in 1977 when I was 20. My son Isaac is now in university and his brother Taylor is planning to do the same soon. I see curiosity and a passion for learning in both of them that makes me proud. With my oldest son attending university, I am privy to the "other" side. He offers me a student's perspective that I find valuable in understanding the teaching-learning dynamic, and shares the goals he has, in addition to learning course content, for the classes he chooses.

I have taught Education classes for the past 18 years, and have used active learning to engage students. I teach classes in the same way as I facilitate workshops designed for adult learners. I began to increase student responsibility for decision-making regarding assignments over the past few years. As

individuals, students were able to decide on mark allocations within the university guidelines and propose assignments and projects they wished to carry out. I found that this caused a great deal of uncertainty and anxiety for many students. They were familiar with having precise guidelines and requirements. One of my objectives was to help students become responsible decision-makers. Occasionally, there would be resistance to this idea, but, with guidance and support, students came to appreciate the opportunity to have more say in their learning and how they would demonstrate that learning.

From my own teaching I was familiar with the resistance participants in my study spoke of. I was actually familiar with their observations in general. Their experiences were not dissimilar from my own. I, too, developed a personal signature pedagogy early in my career. Because of my teacher training and exposure to professional development directly focused on teaching practices, my personal signature pedagogy is somewhat more expansive than that of the participants I worked with. I simply had access to more ideas early in my career that resonated with my personal and professional beliefs, and my profession was the practice of these ideas on a daily basis.

Summary of Chapter 7

I learned a great deal through the various aspects of my research agenda on the integration of a good idea that is applicable to the integration of active learning in undergraduate classes. Most importantly for me, I realized that what is common practice for me is not common for others. The language of teaching is a foreign language to many. It might be that coaching that meets the particular needs of the individual in a timely way is so effective because it is like having a

personal translator and tour guide to point out the sights and linking them to the individual's personal preferences and interests.

EPILOGUE

THE JOURNEY

Personal Reflections

Much has changed in the years of my research program. Most notably, both my sons started and finished high school. The process of producing this dissertation took much longer and was much slower than I ever thought it would be, could be, or should be. Contrary to what some might think, there are advantages to using all the time available to complete a doctorate. Focusing one's attention broadly and gently in a single direction over a number of years yields insights that might have otherwise been lost in a blur of "rush to finish." In martial arts, this is called this seeing with "soft eyes." That description best characterizes my doctoral work. What I saw through "soft eyes" as I thought and pondered and often completely ignored my study actually became more focused and distinctly clear over time. My process of discovery and insight could be likened to the process of fruit becoming fine full-bodied wine rather than a sow's ear turning into a silk purse. What follows is the candid version of what transpired in this study, and what I learned and would do differently another time.

In conducting this study, I found out many "asides" that were of interest but didn't have a place in the formal aspects of a dissertation—and hence the Epilogue.

Where Best Intentions and Reality Meet

One describes a tale best by telling the tale. You see? The way one describes a story, to oneself or to the world, is by telling the story. It is a

> *balancing act and it is a dream. The more accurate the map, the more it resembles the territory. The most accurate map possible would be the territory, and thus would be perfectly accurate and perfectly useless. The tale is the map that is the territory.* (Gamon, 2001, p. 427)

I started out with a plan that changed as the study went along. The first meeting with participants was actually two separate meetings because people couldn't all meet at the same time. I did not have enough volunteers to begin with and so I invited more people who I knew to be enthusiastic and involved. I did not invite people from the College of Education, although that might have been the best pool to choose from, as far as active learning; but I had the feeling–and no more than that–that these people were interested enough in education to choose that area as their focus. I wanted faculty from other colleges where the content of what they teach is *not* education. That limited the shoulder-tapping I could do.

After getting approval for the research study, contacting potential participants, and arranging times to meet to collect stories, I took over a year to organize and review the data. It was a long and, sometimes, frustrating experience studded with gems and insights. I listened to the taped interviews repeatedly. The stories and perceptions of the participants and my notes were examined and reexamined and then organized using the areas of *the context*, *the person*, and *the innovation* as well as the possible interactions of these forces.

Looking at the data, I found that there are things I would do differently another time and there were things that looked like a good idea before actually working with real participants with busy schedules. It quickly became apparent

that faculty are extremely busy and that asking for too much of their time was just something I did not want to do. I was thankful that they had volunteered the time they had. I also saw that providing the forum for people who enjoyed teaching to talk about teaching was something special in itself. When we got together, the planned agenda morphed into something different, although it vaguely resembled the one I had entered the room with.

As for the data collection, my instruments were less than perfect. I found out what I wanted to know but they could have been better. Section C of the survey proved to be confusing at best and ostracizing in one case. One participant actually refused to complete *any* of the paper instruments because of confusing wording in some cases and could read in much more than was actually there. This respondent had last minute things come up to prevent attendance at any of the group sessions although times were specially chosen to ensure this individual's attendance. One frank phone call and a long interview were the sum total of the data contributed by this respondent. This individual's perspective might be more reflective of the experiences and feelings of faculty who are less enthusiastic about teaching. This respondent appeared to actually *want* to be enthusiastic about teaching, but wasn't, and that resistance provided an interesting foil to the rest of the data. Tension that exists between what a person should be interested in and what a person actually is interested is note-worthy.

I taped all interviews except for the one where I couldn't get the tape recorder to function even though I changed the batteries and tinkered with it only to discover after the interview that the pause button was on. I learned something new about my Dictaphone that day and about preparedness. I also was very glad

to have the note-taking skills I have. We met in a loud, clanging college cafeteria so the recorder might not have been the best way to capture data anyway. Live and learn. It's no wonder that people go on to do research after they have completed the doctorate–I can hardly wait for another opportunity to use what I have learned from this experience.

Although the study was designed to hear the stories and perceptions of faculty who were using active learning, two people actually were not using active learning. Their stories and perceptions provided contrast which helped to define qualities more distinctly. The information they offered was serendipitous. I saw more clearly the driving and restraining forces at work for faculty using active learning when I was able to see some of the driving and restraining forces at work in the cases of faculty who did not actually use active learning. In addition, because of the negatively-charged feelings in discussing active learning with faculty who thought they *should* use active learning but did not, I wondered if perhaps it is not advisable to have people teach who don't want to teach, or to suggest that other methods of teaching be adopted.

I don't think the notion of "personal signature pedagogy" would have emerged without using a variety of data collection methods. As participants shared the same experiences—or variations on the experience—repeatedly, I noticed that they were not using a wide variety of active methods but rather one or two methods that they had become comfortable with over time through trial and error. It was more like putting additions on a house than tearing down an old house and building a new one. The basic house closely resembled the signature pedagogy of their discipline.

I found that people who were keen on teaching were busy teaching and I didn't get as many participants clamoring to be involved as I would have liked. I had to shoulder tap people I knew who would most likely be cooperative and I was very persistent with a couple of people whose perspectives I was very interested in–and I'm glad I did. I felt awkward asking people to participate in the study. It was much easier working with "keeners" than with people who were feeling guilty about not using active learning.

Good intentions fell by the wayside in the face of practical concerns. I abandoned "daily reflective questions" when I sensed that it was just too much when I introduced the idea. To implement that might have caused undue stress–or so it seemed to me at the time. I didn't push for things. If someone didn't get a survey or inventory in I didn't ask more than once. I figured the lack of input was as valuable a source of information as the completed form would be. That said, people were helpful. Once they were in, they were in. The group meetings were invigorating and enthusiastic.

I lost enthusiasm at several points for a variety of reasons–whenever I was unsure of how to approach the next step, I would simply stop sometimes for up to a year at a time. I didn't know what to do with all the data. I wondered if it was enough data or the right kind. Anytime I was discouraged, I would just stop. I'd move the binder from my desk to the shelf where I couldn't see it. I doubted my judgment at nearly every juncture, and yet, I eventually discovered that making these decisions was my job, and that it was my job to learn how to do this–self-directed, student-centered learning at its finest!

It seemed to me that the classes I had taken had not prepared me to do this research (although when I look back now I see it was all there). I often just didn't have a clue *how* to do *what* needed to be done next. And all the very best guidance and patient support couldn't seem to help me learn to do that any faster. So I wrote articles in medical education; and, after researching consistently winning teams by watching men's rec hockey, I wrote a book chapter. I started an art studio and had two shows. I developed concepts for two television shows and continued to do workshops and facilitate sessions on leadership and change–anything at all to feel successful and productive because I didn't get that working on the study.

After a diversion, I would head back in and do more. When I felt lost, I went back to the purpose and guiding research questions and used them as an anchor line to show me the way back (Kurson, 2004). Just when it seemed that I was getting close, there was some other angle to consider, and many times I was grateful to have, as Kurson (2004) would say, boarded the "boat" with a plan, decided on a work area, set reasonable goals, and then had a strategy to accomplish those goals. I don't imagine this is atypical in reviewing and analyzing a large amount of data; I just didn't realize that I had as much data as I did!

Time and again, I thought I was finished the analysis but would go back in with a new question or insight. The same thing happened with the writing process. I collected articles on how to do dissertations to help me learn what I needed to do. Just collecting these was inspiring and fueled me on for more work. When I was unsure of what to do next in my own study, I read chapters others had written. I rewrote my proposal in the past tense. I came to understand that I

would have to create the logic trail and the paper trail should anyone want to replicate this study or follow my logic in coming to similar conclusions and recommendations.

As confluence would have it, the final lunge to completion happened when I couldn't register for Term 2 2008—I had outstanding fees because of the medical and dental plan. I panicked because that would mean I might not be able to finish and I finally realized two things: I actually *wanted* to finish; and I didn't want to keep paying fees! This was taking a long time if my original committee members were retiring and I was on the "old" grad studies plan! The institution was changing faster than I was. It was time to get a move on.

In my art, I have a motto—"no day without a line." There is a certain feeling I get when a painting is finally finished and it sells. It took a long time to get that feeling with this study. It is fitting, and perhaps not so surprising then, that the same process I eventually allowed myself is similar to the evolution of instructional practices that I observed in my own career and the careers of others. The change process I uncovered in the stories of people driven more by curiosity than restrained by fear was not dramatic "change" at all, but rather a gentle evolution rooted in perceived needs that were met gently and serendipitously with timely, appropriate, and applicable information that eventually became their "personal signature pedagogies."

Personal Growth and Change (or Silver Linings in Dark Clouds)

I'm going to find out what I am. (Kurson, 2004, p. 81)

I understand that completing a dissertation is about contributing knowledge to the academic community, but this process seemed to contribute to

the development of a more mature, humble, well-rounded, persistent, and knowledgeable character. Or at least I'd like to think so. I wonder if anyone has ever done a doctorate that studied the PhD experience. That one would interest me, because it took quite a while before I realized that, in choosing this program of study, I was learning more than the content it offered; more was going on than just the academic study.

I was experiencing angst and turmoil as deep insecurities surfaced. Carl Jung would say I was coming face to face with my shadow and animus. Along with a rigorous program of research and writing a dissertation, I decided to learn to regain equilibrium more quickly, think and articulate more clearly, and use "incubation periods" productively. I was developing commitment and tenacity, and in the face of perceived adversity, I kept coming back and doing more, often when I felt like quitting. As Kurson said, "the worst possible decision is to give up" (2004, p. 84).

Long fallow periods occurred with disappointments or uncertainty. On more than one occasion, I thought about abandoning the doctorate, and at those times I would do something else. "Something else" took a variety of interesting forms from hockey (Appendix A) to art. I was eventually patient with my creative process and gentle with myself when thoughts were not coming together and the whole thing felt foggy. During one of those fallow periods, Isaac gave me a book that he was excited about—*Shadow Divers*. Kurson (2004) was speaking to my experiences of "diving" into the doctoral program, *sans* air tanks, in this particular quotation:

> A great diver learns to stand down his emotions. At the moment he becomes lost or blinded or tangled or trapped, that instant when millions of years of evolution demand fight or flight and narcosis carves order from his brain, he dials down his fear and contracts into the moment until his breathing slows and his narcosis lightens and his reason returns. In this way he overcomes his humanness and becomes something else. In this way, liberated from instincts, he becomes a freak of nature.
>
> To arrive at such a state, the diver must know the creases and folds of dread, so that when it leaps on him inside a wreck he is dealing with an old friend. The process can take years. It often requires study, discussion, practice, mentoring, contemplation, and hard experience. At work, he nods when the boss reveals the latest sales figures, but he is thinking, 'whatever else is wrong inside a shipwreck, if you are breathing you are okay.' Paying the bills or setting the VCR at home, he tells himself, 'If you find trouble inside a wreck, slow down. Fall back. Talk yourself through it.' As he gains more experience, he will meditate upon what every great diver tells him: 'Fix the first problem fully and calmly before you even think about the second problem.' (p. 38)

After difficulty with the comprehensive exam, I had to "dial down" my fears and, although I resisted the impulse to flee, I froze. It took a long time to thaw. I felt that I knew more about the "creases and folds of dread" when I approached my committee with a second research proposal. Again, it had taken a long time to thaw after the freeze. My process took years and often required "study, discussion, mentoring, contemplation, and hard experience." Deep down I knew

that “excellence is born of perseverance, dedication, focus, and tenacity” (Kurson, 2004, p. 84) and that this journey was one of the most significant ones I would ever personally undertake.

The Story and the Map

Essentially a study is about answering a burning question. What I didn’t realize going into this doctoral program was that some of the burning questions I would explore would have to do with my own epistemology, tenacity, insecurities, and abilities. Along with a professionally rich and rewarding research program, I also had the opportunity to grow personally. Although it would be absurd to think that a project of this magnitude would not have an effect on an individual, I consciously had not considered that through the *process* of completing the doctoral study I would gradually change from an arrogant, bolting hare to a well-worn, humbled, velveteen rabbit.

I discovered that real things that last, like personal signature pedagogies, teaching traditions, meaningful relationships, deep understanding, and personal awareness, take time to develop. Completing a doctorate was the final thing I wrote on a list in my early 20s when I was a “baby teacher.” It seems that some things simply taker longer to complete than do others, and take heart that “most mind change is gradual, occurring over significant periods of time” (Gardner, 2004, p. 211). I feel that my mind has truly changed over this course of study.

The findings of this study indicated that a “good idea” is integrated into undergraduate classes through a series of simple, resonating renovations in a benevolently neutral environment. I hope I have also been able to convey that

both a job well done and deep, lasting change require the gentle acceptance of one's own process.

REFERENCES

Adler, M. (1982). *The Paedeia proposal.* New York: MacMillan.

Argyris, C. (1982). *Reasoning, learning, and action*. London: Jossey-Bass.

Austin, A., & Chang, M. (1995). Colleges that emphasize research and teaching: Can you have your cake and eat it too? *Change*, September-October. 45-49.

Barker, A. (2003). Faculty development for teaching online: Educational and technological issues. *The Journal of Continuing Education in Nursing, 34*(6), 273.

Biggs, J. (1999). *Teaching for quality learning at university: What the student does?* Buckingham, UK: Society for Research into Higher Education and Open University Press.

Billings, L., & Fitzgerald, J. (2002). Dialogic discussion and the Paideia seminar. *American Educational Research Journal, 39*(4), 907-941.

Bligh, D. (2000). *What's the point in discussion?* Exeter: Intellect Books.

Bok, D. (2003). *Universities in the marketplace: The commercialization of higher education*. Princeton, NJ: Princeton University Press.

Bok, S. (1983). *Secrets: On the ethics of concealment and revelation*. New York: Vintage Books.

Bowe, C., Lahey, L., Armstrong, E., & Kegan, R. (2003). Questioning the 'big assumptions' Part I: Addressing personal contradictions that impede professional development. *Medical Education,* 37, 715-722.

Boyer, E. (1990). *Scholarship reconsidered: Priorities of the professoriate.* Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Bransford, J., Brown, A., & Cocking, R. (Eds.). (2000). *How people learn: Brain, mind, experience, and school.* Washington, DC: National Research Council, National Academy Press.

Brewer, J., & Hunter, A. (1989). *Multimethod research: A synthesis of styles.* Newbury Park, CA: Sage.

Bridges, W. (2007). The Three Questions. Retrieved 09/15/2008. http://www.wmbridges.com/resources/article-three_questions.html

Bruhn, J., Zajac, G., Al-Kazemi, A., & Prescott Jr., L. (2002). Moral positions and academic conduct. *The Journal of Higher Education, 73*(4), 461-494.

Caldwell, B., & Tymko, J. (1990). *Policy making for education: A guidebook for boards of education* (2nd ed.). Alberta School Trustees Association.

Chickering, A., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3-7.

Chin, R. (1989). *Case study research: Design and methods.* (Revised ed.). Newbury Park, CA: Sage.

Cialdini, R. (1988). *Influence: Science and practice* (second edition). Boston: Scott, Foresman and Company.

Clandinin, J., & Connelly, M. (2002). *Narrative inquiry: Experience and story in qualitative research.* San Francisco: Jossey-Bass.

Commission of Inquiry on Canadian University Education. (1991). *Report: Commission of inquiry on Canadian university education; Stuart L. Smith, commissioner*. Ottawa, ON: Association of Universities and Colleges of Canada.

Connor, D. (1992). *Managing at the speed of change: How resilient managers succeed and prosper when others fail.* New York: Villard Books.

Cottrell, S. (2001). *Scholarly teaching: Exploring how diverse faculty investigate course changes to improve student learning.* Dissertation submitted to the College of Human Resources and Education at West Virginia University in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership Studies. UMI Number: 3012822.

Creswell, J. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research.* Upper Saddle River, NJ: Pearson Education.

Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: Harper Collins.

Csikszentmihalyi, M. (2003). *Good business: Leadership, flow, and the making of meaning*. New York: Viking.

Darling-Hammond, L. (1998). Policy and change: Getting beyond bureaucracy. In A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds.), *International Handbook of Educational Change* (Vol. 5, pp. 642-667). London: Kluwer Academic Publishers.

D'Eon, M., Overgaard, V., & Rutledge Harding, S. (2000). Teaching as a social practice: Implications for faculty development. *Advances in Health Sciences Education, 5*, 151-162.

Dunne, D., & Brooks, K. (2004). *Teaching with cases*. Halifax, NS: Society for Teaching and Learning in Higher Education.

Elliot, S., Kratochwill,T., & Roach, A. (2003). Commentary: Implementing social-emotional and academic innovations: Reflections, reactions, and research. *School Psychology Review*, *32*, 320-326.

Feist, L. (2003). Removing barriers to professional development. *T.H.E. Journal, 30*(11), 30, 32, 34, 36.

Fowler, G. (2003). Postmodernism: This changes everything! *The Journal of Student Centered Learning*, *1*(2), 87-95.

Frank, R. (1988). *Passions within reason: The strategic role of emotions.* New York: W.W. Norton and Company.

Fullan, M., & Stiegelbauer, S. (1991). *The new meaning of educational change.* New York: Teachers College Press.

Fullan, M. G. (2003). *Change forces with a vengeance.* New York: Routledge Palmer.

Fuller, F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal, 6,* 207-26.

Gamon, N. (2001). *American gods.* New York: William Morrow.

Gall, M., Gall, J., & Borg, W. (2003). *Educational research: An introduction* (7th ed.). New York: Allyn and Bacon.

Gardner, H. (2004). *Changing minds: The art and science of changing our own and other people's minds*. Boston: Harvard University Press.

Gergen, K. (2000). *An invitation to social construction*. London: Sage.

Gladwell, M. (2000). *The tipping point: How little things can make a big difference*. Boston: Little-Brown.

Golden, A. (1997). *Memoirs of a geisha*. New York: Alfred A. Knopf.

Greene, J., & Caraceili, V. (1997). Defining and describing paradigm issue in mixed-method evaluation. In J. Greene & V. Caraceili (Eds), *Advances in Mixed-method Evaluation: The Challenges and Benefits of Integrating Diverse Paradigms* (pp. 5-17) (New Directions for Evaluation, No. 74). San Francisco: Jossey-Boss.

Greenwood, D., & Levin, M. (2000). Reconstructing the relationships between universities and society through action research. In N. Denzin & Y. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 85-106). London: Sage.

Greenbaum, T. (2000). *Moderating focus groups: A practical guide for group facilitation*. Thousand Oaks, CA: Sage.

Halberstam, J. (1993). *Everyday ethics: Inspired solutions to real life dilemmas*. New York: Penguin Books.

Hodges,L. (2006). Preparing faculty for pedagogical change: Helping faculty deal with fear. In S. Chadwick-Blossey (Ed.), *To Improve the Academy, Vol. 24: Resources for Faculty, Instructional, and Organizational Development* (Ch. 9). Bolton, MA: Anker.

Howlett, M., & Ramesh, M. (2003). *Studying public policy: Policy cycles and subsystems*. (2nd ed.). New York: Oxford University Press.

Johnson, B., & Onwuegbuzie, A. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-27.

Joyce, B., & Showers, B. (1983). *Power in staff development through research on training*. Alexandria, VA: Association for Supervision and Curriculum Development.

Jung, C. (1933). *Modern man in search of a soul*. New York: A Harvest Book.

Kahneman, D., & Tversky, A. (1984). Choices, values, and frames. *American Psychologist*, *39*, 341-50.

Kane, R., Sandretto, S., & Heath, C. (2002). Telling half the story: A critical review of research on teaching beliefs and practices of university academics. *Review of Educational Research. 72*(2), 177-228.

Kanthan, R., & Mills S. (2005). Active learning strategies in undergraduate medical education of pathology: A Saskatoon experience. *Journal of International Association of Medical Science Educators (JIAMSE),* 15; (20), 12-18.

Kanthan, R., & Mills S. (2005). Multiple intelligences in undergraduate medical education. *Journal of International Association of Medical Science Educators (JIAMSE),* 15, 49-56.

Kanthan, R., & Mills S. (2006). Using metaphors, analogies, and similes as aids in teaching pathology to medical students. *Journal of International Association of Medical Science Educators (JIAMSE),* 16, 19-26

Kanthan R., & Mills S. (2007). Cooperative learning in the first year of undergraduate medical education. *World Journal of Surgical Oncology*. Nov 28, 5(1), 136

Kekes, J. (1988). *The examined life.* University Park, PA: The Pennsylvania State University Press.

Kirkpatrick, D. (1994). *Evaluating training programs: The four levels.* San Francisco: Berrett-Koehler.

Kohn, A. (1987). Studies find reward often no motivator: Creativity and intrinsic interest diminish if task is done for gain. Special to the Boston Globe [reprinted with permission of the author from the Monday 19 January 1987 Boston Globe]. Retrieved 12/15/2002. http://www.cs.pdx.edu/~trent/gnu/MOTIVATION

Kubler-Ross, E. (1969). *On death and dying.* New York: Macmillan.

Kuhn, R. (2000). How does creativity work at work? *Closer to the Truth.* http://cttdev.gps.caltach.edu/topics/creativitythinking/203/203transcript.html. Retrieved 7/11/2002.

Kurson, R. (2004). *Shadow divers.* New York: Ballantine Books.

Larson, D. (2002). The personal in academic life: Key considerations in support of the teacher-scholar model, *What is a Teacher-Scholar? Symposium Proceedings* (pp. 63-70). Saskatoon, SK: Gwenna Moss Teaching and Learning Centre, University of Saskatchewan.

Lave, J., & Wenger, E. (1991) *Situated learning: Legitimate peripheral participation*. Cambridge: University of Cambridge Press.

Leonard, D., & Swap, W. (1999). *When sparks fly: Igniting creativity in groups.* United States: President and Fellows of Harvard College.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers.* D. Cartwright (Ed.). New York: Harper & Brothers.

Malen, B. (2000). Education policy analysis. Unpublished course outline.

Marsh, H., & Hattie, J. (2002). The relation between research productivity and teaching effectiveness: Complementary, antagonistic, or independent constructs? *The Journal of Higher Education*, 73(5), 603-641.

Martin, M. (1986). *Self-deception and morality*. Kansas: University of Kansas Press.

Massy, W., Wilger, A., & Colbeck, C. (1994). Overcoming "hollowed" collegiality. *Change*, *26*, 10-20.

McManus, D. (2005). *Leaving the lectern: Cooperative learning and the critical first days of students working in groups.* (Ch. 3). Bolton, MA: Anker.

Menges, R.J. (1987). Colleagues as catalysts for change in teaching. *To Improve the Academy*, *6*, 83-93.

Meyer, J., & Gray, T. (1996). *Peer coaching: An innovation in teaching.* Retrieved 4/2/2004. http://kolea.kcc.hawaii.edu/tcc/tcc_conf96/meyer.html

Michael, J. (2007). Faculty perceptions about barriers to active learning. *College Teaching*, 55(2), 42-48.

Miles, M., & Huberman, M. (1994). Qualitative data analysis: an expanded sourcebook. Thousand Oaks: Sage.

Miller, P., & Anderson, P. (2002). Closing the gap between rhetoric and reality in faculty work and reward. *Action in Teacher Education*, *23*(4), 50-58.

Mills, S. (2003). Cooperative learning at the post-secondary level. In E. Ralph (Ed.), *Effective college teaching: Fresh insights and exemplary practices* (Ch. 6). Hauppauge, NY: Nova Science Publishers.

Mills, S. (2007). Losers swear sooner: What it takes to be a consistently winning team. In D. McIntire (Ed.), *Teamwork: Making the dream work* (Ch. 4). Indianapolis, IN: Precedent Press.

Mishler, E. (1995). Models of narrative analysis: A typology. *Journal of Narrative and Life History, 5*(2), 87-123.

Nelson, C. (1996). Student diversity requires different approaches to college teaching, even in math and science. *American Behavioral Scientist, 40* (2), 165-175 (172).

Nelson, C. (2001). What is the most difficult step we must take to become great teachers? *The National Teaching and Learning Forum, 10*(4), 10-11.

Neufeld, B., & Roper, D. (2003). *Coaching: A strategy for developing instructional capacity, promises, and practicalities.* Washington, DC: Aspen Institute Program on Education and Annenberg Institute for School Reform, 2003. Retrieved 4/2/2004. www.annenberginstitute.org/publications/reports.html

Newman, J. H. (1852). *Discourses on the scope and nature of university education.* Addressed to the Catholics of Dublin. Dublin, Ireland: James Duffy.

Nyberg, D. (1993). *The varnished truth.* Chicago: The University of Chicago Press.

Olsen, D., & Simmons, A. B. (1994). Faculty perceptions of undergraduate teaching. *To Improve the Academy, 13,* 237-254.

O'Neill, M. B. (2000). *Executive coaching with backbone and heart: A systems approach to engaging leaders with their challenges*. San Francisco: Jossey-Bass.

Owens, R. (1991). *Organizational behavior in education*. (4th ed.). Englewood Cliffs: Prentice Hall.

Panitz, T. (2003). Why more teachers do not use student centered learning techniques and policies needed to encourage positive changes. *The Journal of Student Centered Learning, 1*(2), 55-60.

Pendleton, E. (2002). Re-assessing faculty development. *Black Issues in Higher Education,* 19(19), back cover.

Poindexter, S. (2003). The case for holistic learning. *Change*, *35* (1), 24-30.

Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, *93* (3), 223-231.

Probst, D. (2003). A six-step approach for improving faculty morale. *Academic Leadership, 19* (4), 2-3, 5.

Rocco, T., Bliss, L., Gallagher, S., & Perez-Prado, A. (2003). Taking the next step: Mixed methods research in organizational settings. *Information Technology, Learning, and Performance Journal, 21* (1), 19-29.

Rogers, E. (1983). *Diffusions of innovations*. New York: Free Press.

Rogers, E. (1995). *Diffusion of innovations.* (4th ed.). New York: Free Press.

Rupp, R. (1998). *How we remember and why we forget.* New York: Three Rivers Press.

Russell, I., Hendricson, W., & Herbert, R. (1984). Effects of lecturing information density on medical student achievement. *Journal of Medical Education, 57,* 881-889.

Samuels, M., & Samuels, N. (1975). *Seeing with the mind's eye.* New York, Random House.

Sandy, L., Meyer, S., Goodnough, G., & Rogers, A. (2000). Faculty perceptions of the importance of pedagogy as faculty development. *Journal of Staff, Program, & Organization Development, 17* (1), 39-50.

Sanson-Fisher, R. (2004). Adopting best evidence in practice: Diffusion of innovation theory for clinical change. *The Medical Journal of Australia,* Available: www.mja.com.au [4/5/2004].

Saxena, A., & Mills, S. (pending publication). Crossword puzzles: Active learning in undergraduate pathology and medical education. *Archives of Pathology and Laboratory Medicine.*

Schein, E. (2004). *Organizational culture and leadership*. (3rd ed.). San Francisco: Jossey-Bass.

Schon, D. (1983). *The reflective practioner: How professionals think in action*. New York: Basic Books.

Schulman, L. (2005). Pedagogies of uncertainty. *Liberal Learning,* 91 (Spring), 18-25.

Schulman, L. (2005). Signature pedagogies in the professions. *Daedalus, 134* (3), 52-59.

Schulman, L. (2005). The signature pedagogies of the professions of law, medicine, engineering, and the clergy: Potential lessons for the education of teachers. Retrieved 09/15/2008. http://hub.mspnet.org/media/data/Shulman_Signature_Pedagogies.pdf?media_000000001297.pdf

Schwartz, B. (2004). *The paradox of choice: Why more is less.* New York: Ecco.

Sergiovanni, T. (2000). *The lifeworld of leadership: Creating culture, community and personal meaning in our schools.* San Francisco: Jossey-Bass.

Shank, G. (2002). *Qualitative research: A personal skills approach.* Upper Saddle River, NJ: Pearson Education.

Shaw, M. (1988). *The paradox of intention: Reaching the goal by giving up the attempt to reach it.* (Vol. 48). Atlanta: Scholars Press.

Shea, M., & Knoedler, A. (1994). Becoming a teacher: From pedagogy to practice. *Journal on Excellence in College Teaching,* 5(2), 135-151.

Shell, R. (2001). Perceived barriers to teaching for critical thinking by BSN nursing faculty. *Nursing and Health Care Perspectives,* 22(6), 286-292.

Silverman, D. (1993). *Interpreting qualitative data: Methods for analyzing talk, text, and interaction.* London: Sage.

Smith, M. K. (2001, March 14, 2004). *Chris Argyris: Theories of action, double-loop learning and organizational learning*. Available: www.infed.org/thinkers/argyris.htm [2004, 4/5/2004].

Smith, K., Sheppard, S., Johnson, D., & Johnson, R. (2005). Pedagogies of engagement: Classroom-based practices. *Journal of Engineering Education,* 94(1), 87-102.

Smith, P. (2004). Curricular transformation: Why we need it, how to support it. *Change, Jan/Feb,* 28-35.

Spence, L. (2001). The case against teaching. *Change,* (Nov-Dec), 11-19.

Stark, J., & Lattuca, L. (1997). *Shaping the college curriculum: Academic plans in action.* Needham Heights, MA: Allyn and Bacon.

Stiles, K., & Loucks-Horsley, S. (1998). Professional development strategies. *The Science Teacher*, 65(6), 46-49.

Sunal, D., Hodges, J., Sunal, C., & Whitaker, K. (2001). Teaching science in higher education: Faculty professional development and barriers to change. *School Science and Mathematics,* 101(5), 246-258.

Svinicki, M. (2004). *Learning and motivation in the postsecondary classroom*. Bolton, MA: Anker Publishing.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches.* (Applied Social Research Methods, No. 46). Thousand Oaks, CA: Sage.

Terenzini, E., & Pascarella, P. (1994). Living with myths: Undergraduate education in America. *Change, Jan/Feb,* 28-32.

Thelin, J. (2004). *A history of American higher education.* Baltimore: Johns Hopkins University Press.

Tichey, N. (2002). *The cycle of leadership*. New York: HarperCollins.

University of Saskatchewan. (1993). Mission Statement. Saskatoon, SK. Retrieved on 11/18/2002. http://www.usask.ca/uofs/mission.html.

University of Saskatchewan. (1998). A framework for planning. Saskatoon, SK. Retrieved on 11/18/2002. http://www.usask.ca/university_council/planning/reports/LTPlan3-98.html.

University of Saskatchewan. (2000). Fostering the teacher-scholar model: A planning committee discussion paper. University of Saskatchewan. Retrieved on 11/18/2002.

University of Saskatchewan. (2002). Standards for promotion and tenure. University of Saskatchewan. Retrieved on 11/27/2002. http://www.davs.usask.ca/vpacademic/collegial/university_StandardsFeb122002.shtml

University of Saskatchewan. (2008). The teaching and learning foundational document. Saskatoon. SK: University of Saskatchewan.

Van Dalen, D. (1962). *Understanding educational research.* New York: McGraw-Hill.

Vibert, R. (2006) *Real personal growth: Resisting change*. First published on www.real-personal-growth.com

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. New York: Cambridge University Press.

Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston: Harvard Business School Press.

Whitworth, L., Kimsey-House, H., & Sandahl, P. (1998). *Co-Active coaching: New skills for coaching people toward success in work and life*. Palo Alto, CA: Davies-Black Publishing.

Whyte, D. (1994). *The heart aroused: Poetry and the preservation of the soul in corporate America*. New York: Doubleday.

Willms, D. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Wlodkowski, R. (2003). Fostering motivation in professional development programs. *New Directions for Adult and Continuing Education, Summer*(98), 39-47.

World Science (2008). A surprising new way to discourage risky behaviors? Courtesy University of Chicago Press Journals. Retrieved 09/27/2008. (http://www.world-science.net/othernews/080825_outgroup).

Wright, W., & O'Neil, M. (1994). Perspectives on improving teaching in Canadian universities. *Canadian Journal of Higher Education, 24* (3), 26-57.

Yin, R. (1984). *Case study research: Design and methods*. (1st ed.). Beverly Hills, CA: Sage.

Zukav, G., & Francis, L. (2001). *The heart of the soul: Emotional awareness.* New York: Simon & Schuster Source.

Zull, J. (2002). *The art of changing the brain: Enriching teaching by exploring the biology of learning*. Sterling, VA: Stylus Publishing.

APPENDICES LISTING

APPENDIX A

PROFESSIONAL INVOLVEMENT AND COLLABORATIONS

APPENDIX A

PROFESSIONAL INVOLVEMENT DURING DOCTORAL PROGRAM

Over the course of my doctoral studies I was involved in several projects related to my primary focus of active learning in undergraduate classes. As is evidenced by the chronological listing that follows, I began with a book chapter related to one of the areas directly related to my own teaching experiences—the use of cooperative learning in post-secondary classrooms. I taught a class on this topic for several years, continue to regularly give workshops and presentations, and participate as a scholar with the Centre for the Study of Cooperatives.

In the fall of 2003 I began working with Dr. Rani Kanthan as her instructional coach. In a collaboration that flourished and became increasingly productive, we researched, published and presented on the inclusion of active learning strategies in undergraduate medical classrooms. I also worked on several projects with Dr. Anurag Saxena, a colleague of Dr. Kanthan's. Both Drs Kanthan and Saxena have gone on to Master's Programs in Medical Education.

Although we sat side by side writing each article, designing each poster, and developing each presentation together, I indicated my role of support and coach through second authorship in all cases. As a coach and instructional strategy expert, I was supporting them in their endeavors.

Losers Swear Soon (2007) was a project that grew out of a desire to understand a Canadian pastime of which I had limited understanding. I surprised myself with my own propensity for research with the approach I took and the resulting book chapter. A national pastime became a published chapter for me.

APPENDIX A-1

Chronology

2003 Mills, S. (2003). Cooperative learning at the post-secondary level. In E. Ralph (Ed.), *Effective College Teaching: Fresh Insights and Exemplary Practices.* (Ch. 6). Hauppauge, NY: Nova Science Publishers.

2004 Kanthan, R., and Mills S. Active Learning Strategies in Undergraduate Medical Education of Pathology: A Saskatoon Experience (poster). International Association of Medical Science Educators (IAMSE), Annual Meeting, July, 2004. (New Orleans)

2005 Kanthan, R., and Mills S. Active Learning Strategies in Undergraduate Medical Education of Pathology: A Saskatoon Experience. *Journal of International Association of Medical Science Educators (JIAMSE),* 2005 15; (20):12-18.

Kanthan, R., and Mills S. Multiple Intelligences in Undergraduate Medical Education. *Journal of International Association of Medical Science Educators (JIAMSE)* 2005 15: 49-56.

Saxena, A., and Mills, S. Promoting reflective practice: Tools for individualizing resident training (poster). *The Royal College of Physicians and Surgeons of Canada, Annual Conference,* September, 2005. (Vancouver)

2006 Kanthan, R., Premkumar K, Mills S. Cooperative Learning as an Instructional Strategy in Undergraduate Medical Education (poster). *CAMES Medical Education Conference*, May, 2006. (London, ON)

Kanthan, R., and Mills S. Integration of CanMEDS in Undergraduate Medical Education: A course design model. Best Practices in Medical Education (poster). *The Royal College of Physicians and Surgeons of Canada, Annual Conference*, September, 2006. (Ottawa)

Kanthan, R., and Mills S. A framework for teaching and learning: Multiple Intelligences (workshop). *28th National McGraw-Hill Ryerson Teaching, Learning & Technology Conference*, November, 2006 (Saskatoon)

Kanthan, R., and Mills S. Using metaphors, analogies, and similes as aids in teaching pathology to medical students. *Journal of International Association of Medical Science Educators. (JIAMSE)* 2006 Jun 16: 19-26

2007 Kanthan, R., and Mills S. The Power of Synergy: Transformational Connective Knowledge (workshop). *31st McGraw-Hill Ryerson National Teaching, Learning and Technology Conference*. Ryerson University, Toronto, ON. Nov 17th 2007

Kanthan, R., and Mills, S. Cooperative learning in the first year of undergraduate medical education.*World J Surg Oncol*. 2007 Nov 28;5(1):136

Mills, S. (2007). Losers swear sooner: What it takes to be a consistently winning team. In D. McIntire (Ed.), *Teamwork: Making the Dream Work*. Indianapolis, IN: Precedent Press.

2008 Saxena, A. & Mills, S. (in press). Crossword puzzles: Active learning in undergraduate Pathology and Medical Education. *Archives of Pathology and Laboratory Medicine.*

APPENDIX A-2

Kanthan and Mills

Dr. Kanthan and I were prolific in our endeavors during the four years we worked closely together. We are still collaborating as opportunities arise. Our four published articles are included in this appendix.

Active Learning Strategies in Undergraduate Medical Education of Pathology: A Saskatoon Experience

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ABSTRACT

Medical education continues to be primarily structured around faculty authority and lecture. This promotes individualistic competitive environments rather than the co-operative ones needed for "patient-centered medicine." In much the same way as one can decide to either purchase a new home outright or renovate an existing home to better meet needs, in this study we set out to renovate an existing home by exploring the inclusion of active learning strategies -- collaboration, metaphor and analogy, and summarization techniques --in a general pathology course within the traditional undergraduate medical curriculum framework. The aim was to create a collaborative classroom opportunity for analyzing, problem solving, summarizing, and using visual/verbal metaphors to explain complex medical concepts in a simple fashion. Through this participation, students earned 10% toward their final grade and received general immediate feedback on their submitted work. The inclusion of these strategies was evaluated through student performance on the midterm exam and by a questionnaire completed anonymously by all students at the same time. The student performance in the midterm exam was slightly higher than in previous years. Of the total number of 256 responses to the open-ended questions from the students, 170 (67%) were positive about the inclusion of these active learning strategies. Seventy-two responses were negative (28%) while 14 (5%) comments were neutral. Some students indicated that these strategies detracted somewhat from traditional lecture time or that analogy and metaphor were "too abstract." Based on feedback from students and observing student participation, we feel that these strategies, as a "renovation" of the traditional lecture-based undergraduate medical curriculum, "do no harm" and, in fact, contribute to learning and social interaction in the delivery of pathology. The long-term impact of using resonant analogies and metaphors to explain complex medical concepts to patients may only become apparent when these students are doctors in team-oriented, patient-centered clinical practices.

INTRODUCTION

Post-secondary education is changing; the postmodern generation wants fun, power in their own hands, clear expectations and explanations, personal rapport with their instructors, honesty, and uninhibited use of technology.[1] Students are "becoming more diverse in ethnic background, age, and participation patterns."[2] Current research on learning indicates that using a wide variety of teaching strategies in the classroom increases student buy-in and learning, but "because employing this emerging knowledge challenges the historic structure of the universities, we ignore it"[3] "This raises the question of whether it has already become immoral to teach without extensive use of active learning techniques that so enhance performance."[4] Learning and participation are inseparable.[5] In response to findings such as these, the professoriate is being encouraged to adapt and alter their teaching methods to address the new generation of postmodernist students.[1]

More specifically, there is a shift in medical education toward educating physicians who can work as team members; an ideal medical education would produce physicians who, as part of a health team, practice "patient centered medicine."[6] This education has remained elusive, perhaps, because it requires a change of philosophy from a disease-centered approach to an illness-centered approach, as well as an expectation for physicians to be members of health care teams (medical and non-medical trained personnel) responsible for patient management. Being a member of a team requires effective interaction and communication with all members of the team. Physicians-in-training require opportunities to develop these interpersonal skills that will be used throughout their careers

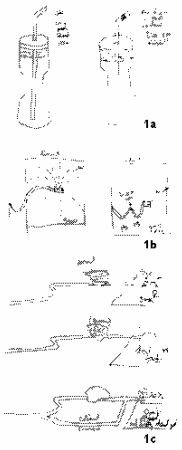

Figure 1. Visual Metaphors.
Working in groups, students were asked to represent the concepts of thrombosis/embolism-infarction using visual metaphors that drew on their personal experiences in order to simplify these complex concepts.

with both patients and team members as part of their hitherto traditional rigorous medical education. [7,8]

Active learning strategies are instructional tools that can address both content and process objectives that include the development of interpersonal, communication and problem-solving skills within the current framework and tradition of lecture-based classes. Dealing with the same content, students have an opportunity to both increase their grasp of the content while using processes that encourage interpersonal communication, teamwork, and problem solving. Active learning strategies are widely used in both elementary and secondary educational settings and in some post-secondary and adult education because they promote learning through the active participation of the learner; "teaching strategies and learning tasks used in university classrooms foster intellectual passivity because they focus on presenting knowledge, rather than constructing analyzing, synthesizing, or evaluating knowledge." [9] Teaching styles in medicine have remained fairly pedantic with traditional modernist classrooms structured around faculty authority and visual learning. Such traditional teaching continues to promote an individualistic, competitive environment rather than fostering the skills of cooperation necessary to function effectively as part of a team.

A vision for a progressive team approach to the management of patients has called for the active involvement of medical students in their own education and training. This promotes and provides opportunities for the development of the thinking skills and interpersonal skills needed to function effectively in this new environment. Active learning strategies that emphasize small group activities reinforce the content for which medical students are responsible by using strategies that address a wider variety of individual learning styles, and promote the development of effective team work and interpersonal skills through the processes of active learning.

The design and format of the study contribute unique ideas to the field of medical education; there is a collegial relationship between a medical faculty member and an education expert in an on going collaborative process, and students are experiencing strategies that will both presumably enhance their immediate learning and will provide them with techniques to use with patients in their future medical practices. More specifically, the purpose of this study was to evaluate the inclusion of three methods of active learning strategies (encouraging collaboration, using analogy and metaphor, and summarizing techniques) in the general pathology course of the undergraduate medical curriculum.

METHODS AND MATERIALS

The active learning strategies of using metaphor, collaboration, and summarization techniques including the fishbone technique were incorporated into a General Pathology Course. The specific teaching strategies chosen addressed both process and content of:

a) Developing and practicing interpersonal and communication skills;
b) Promoting a more cooperative atmosphere among individuals;
c) Providing opportunities for group problem solving;
d) Introducing and modeling a technique for conveying complex medical concepts in an accessible simple way for students to use in the future with their patients; and
e) Incorporating a wider variety of strategies linked to learning styles to help students understand the content more thoroughly.

The course ran from the end of August to the middle of December meeting 43 times in total, three times per week. This is a 6-credit course with 57 contact hours taught by 8 different instructors over the term. There were 88 students enrolled in this course: 60 2nd year medical students, 26 2nd year dental students, and 2 Masters in Pathology graduate students. This study was initiated and carried out by the course coordinator who was an instructor and taught 13 of the 22 classes; these sessions formed a block series of lectures occurring from the beginning of the course to the midterm exam thereby maintaining continuity of teaching style. Working with a doctoral student in Educational

Table1. Part C Midterm Evaluation/Reflection (2 Marks)

1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree

Circle response as per the following example:

1. I love Pathology

   1 2 3 4

1. The test material reflects the "Objective Criteria" for Path 301.6.

   1 2 3 4

2. The questions reflected the material taught.

   1 2 3 4

3. The questions were clear, unambiguous and of high quality.

   1 2 3 4

4. Part B questions help me demonstrate my knowledge in Pathology.

   1 2 3 4

5. I was prepared to answer the Part B question format.

   1 2 3 4

6. I enjoyed the challenge of answering the Part B format questions.

   1 2 3 4

Active Learning - Teaching Methodology

- Group Discussions/partner work
- Individual Quiz format
- Learning with/by an Analogy (Timbits)
- Learning with/by a Visual Metaphor
- Fish Bone Technique (Embolism/Shock)

7. I liked to participate. Yes ☐ No ☐

8. I enjoyed the social interaction/integration. Yes ☐ No ☐

9. This teaching methodology helped me to learn easily. Yes ☐ No ☐

10. Please indicate below a positive (+)/negative (-)/interesting (PNI) aspect of this approach of teaching methodology.

Positive (+) _____

Negative (-)_____

Interesting _____

COMMENTS:

_____

Administration, this instructor developed lessons that met the content and process objectives to be addressed by increasing the amount of active learning. The instructor and the coach worked together using action research cycles of plan, act, observe, and reflect [10] to decide which active learning strategies might be most effective in meeting the process and content objectives set by this instructor for her portion of the course. It was finally decided to use metaphor, collaboration and various summarization techniques including the fishbone technique. The instructor, an accomplished lecturer, excited by workshops offered for faculty in the College of Medicine to encourage more active learning in medical education, was keenly interested in developing a larger repertoire of instructional methodologies. The coach was interested in seeing if these methods could be used to advantage in medical education. Organizationally, the scholarship of teaching was encouraged in the College.

During the introductory session, students were informed that active learning strategies would be included in their familiar lectures in this instructor's classes. As an incentive beyond the benefits to their own learning and the development of skills that would stand them in good stead with future colleagues and patients, students were informed that participation in these activities would garner 10% of their final grade.

Rather than "buying" a completely new educational style, the instructor and the coach chose to start slowly by "renovating" the old traditional lecture with small bits of active learning strategies that usually took no more than 10 minutes in a 50-minute class. Lectures were punctuated and augmented with active learning strategies that often included working in pairs or small groups. Groups were formed randomly with proximity usually being the deciding factor; students turned to the person sitting closest, generally someone they already knew. Students were asked to discuss key points of portions of the lecture or formulate responses to questions posed throughout the lecture. This provided a break in the flow of lecture information, and gave students an opportunity to reflect and interact with their peers.

At other times, students were asked to develop visual or verbal metaphors that linked the pathology concepts being presented in the lecture to a common visual or verbal concept. The instructor modeled first and gave examples, and then provided an opportunity for students to develop their own metaphors in small groups or pairs. Figures 1a,b,c and 2 provide examples of how students used this technique to advantage. Exploring how various complex medical concepts compared to and are different from familiar concepts helped to cement the medical concepts for some and provided a model that could be used to clarify complex concepts with patients in the future. For some students, the visual metaphors had more impact, and for others, the verbal metaphors resonated more effectively. In both cases, there was an opportunity for the instructor to clear up any misconceptions about the medical concepts that may be illuminated as students developed metaphors. Working in pairs throughout the course, students used a variety of methods to review and summarize lecture information including the fishbone technique (Figure 2a and 2b). Students also had an opportunity to use a simple concept map to summarize a clinical case (Figure 2c and 2d). These had been modeled by the instructor for one of the previous

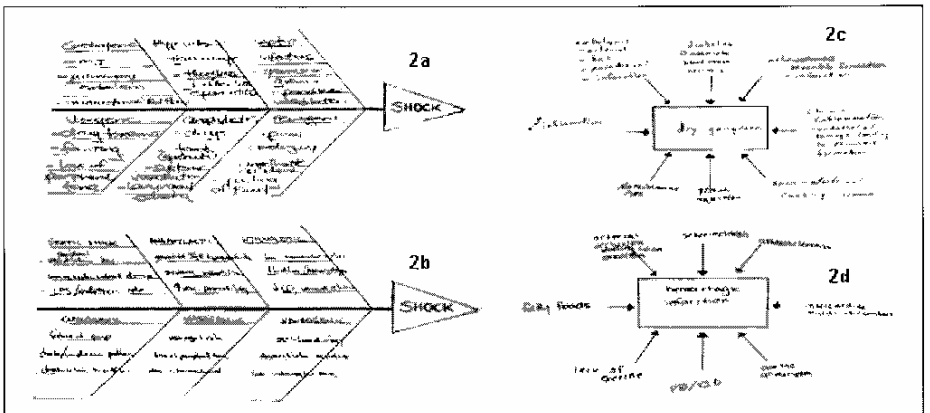

Figure 2. Summarizing Techniques.
Students were asked to evaluate a brief case of an 83-year-old schizophrenic woman who was brought to the emergency department by her neighbors because her leg was blue-black from the knee down. The fishbone technique was used to advantage to clarify and summarize the complex concept of shock (2a and 2b). A simple concept map, demonstrated the key features needed to understand the case (2c and 2d).

topics and for the next lecture the students were asked to participate in developing one of their own working in a small group within the confines of the classroom. In most cases, the students handed in their work as they left the class for the day as a record of their participation in active learning and towards their final grade. Throughout the course, the instructor continued to use PowerPoint presentations and distribute handouts based on these presentations. In this way, some of the traditional lecture structure remained the same as more active learning strategies were added.

Student work was collected over the course of the term. The entire class (88 students) participated in the classroom activities with varying degrees of enthusiasm. There appeared to be engagement in the activities and a good deal of productive "buzz" in the lecture theatre during the activities. The instructor and coach continued to modify the activities throughout the course based on the perceived reactions of the students to the activities. The objectives were not for the students to become proficient with the different activities and they were not graded on the quality of the assignments they handed in at the end of class; they were merely awarded a percentage of their grade for handing *something* in. A sampling of the student responses to the activities was often shared with the large group at the beginning of the next class. Students requested to hear how others had responded and sharing these responses seemed to spark enthusiasm.

The instructor had no further teaching responsibilities in this course after the mid-term so students' perceptions of the active learning strategies were gathered through an anonymous questionnaire administered as a component of the mid-term exam; it was worth 2 marks toward the mid-term grade (Table 1). The questionnaire was the last page of the exam and was torn off to preserve the anonymity of the students. The questionnaires were collated and analyzed on a semi-quantitative and qualitative format. The student performance at the midterm was also used as a performance assessment as the question content was predominantly from the material covered by this instructor.

RESULTS

The student performance at the Midterm exam was slightly better in comparison to the previous years; there was no regression of marks in comparison to the previous years (Figure 3). This reassured the instructor's guiding medical philosophy of "Do no harm."

The overall feedback from the students to the midterm questionnaire was generally favorable. Table 2 indicates the responses to the three yes-no questions. In the comment section, the students generally enjoyed the interaction with peers and liked to participate in these classroom activities. Some indicated that they did not perceive that these changes in teaching methodology actually helped them learn more easily. For some students, however, the summarization techniques and the metaphors and analogies were helpful in clarifying concepts and provided tools to review the concepts over the longer term. In that respect, all objectives were met to some extent. Of the total number of 256 responses to the open-ended questions from the students, 170 (67%) were positive about the inclusion of these active learning strategies. Seventy-two responses were negative (28%) while 14 (5%) comments were neutral. The 14 neutral comments were primarily about the time of day the class was offered and observations about the handout package. The negative comments clustered mostly around a concern that activities took away from lecture time (39 of 72— 54%) without adding significantly to learning or the development of interpersonal skills. The positive comments, however, indicated that interacting with others and engaging in these activities was useful in clarifying the concepts, it was enjoyable, and the class moved more quickly (Table 3).

Table 2. Part C Midterm Evaluation/Reflection: Response to # 7, 8 and 9

	Yes	No	Other
7. I liked to participate	70%	28%	2%
8. I enjoyed the social interaction/integration	88%	10%	2%
9. This teaching methodology helped me to learn easily	47%	52%	1%

DISCUSSION

From the wide variety of strategies that can be used to actively engage students in their own learning, the ones that are chosen depend on the objectives of the course and the needs of the students. Simulations, demonstrations, experiments, debates, role play, small group discussions, creating visual representations and models, problem solving, case studies, research and presentations, and games are all examples of active learning strategies. These strategies are

Table 3. Summary of Qualitative Students' Responses

Categories	Positive	Negative
Impact on learning	Helped (50)	Did not help (13)
"Enjoyment factor"	Enjoyed (60)	Did not enjoy (5)
Group interaction	Positive (54)	Negative (6)
Analogies	Added to learning (26)	Detracted from learning (11)
Use of class time		Not "lecture time" (39)

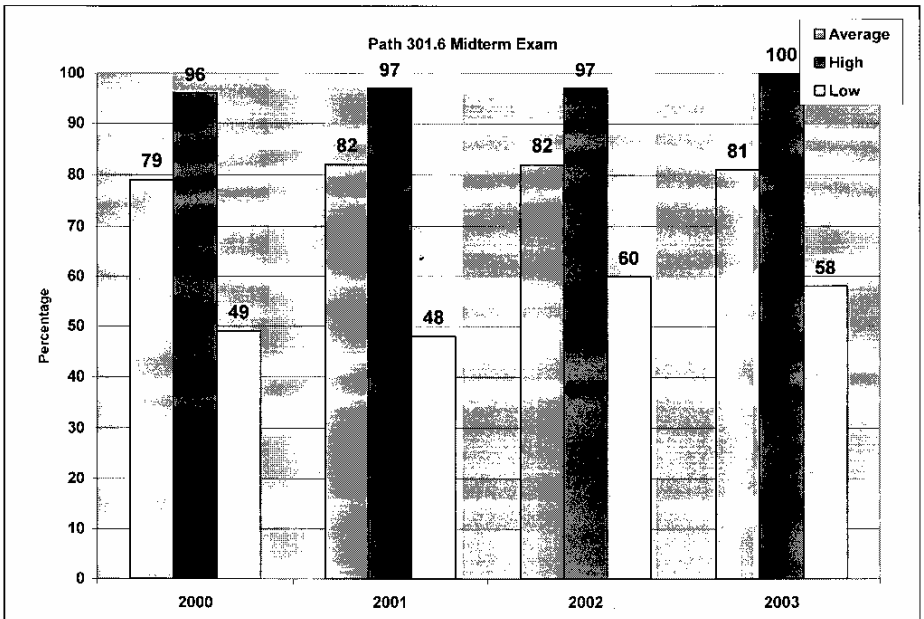

FIGURE 3. Student Performance on Midterm Exam

widely employed in primary and secondary classes and in adult education and workplace training.

Although the feedback from students favored the incorporation of active learning strategies overall we found the negative comments about active learning detracting from lecture time confusing given the endorsement of active learning from the literature. The literature is clear on the benefits of active, student-centered learning over a strictly lecture approach. Lecture is not ineffective but active involvement in the learning process is beneficial to students,[11] it reduces the density in the lecture thereby increasing retention,[12] and addresses a wider range of objectives over and above the transfer of content from instructor to student. Very simply put, "there is a great difference between imagining that we have done the problem and actually doing it,"[13] active learning provides an opportunity for students to do the problem.

The College of Medicine at the University of Saskatchewan has been educating faculty about the benefits of active learning, and providing support through workshop sessions and personal assistance to instructors to restructure lessons. The course instructor involved in this study has attended all of these workshops. Incorporating new strategies takes effort, flexibility, and faculty-driven initiative to make changes as well as the drive to try and make them work. The overall feedback in this one course of general pathology medical and dental students indicates that the students are not as receptive to the perceived benefits of the inclusion of active learning strategies in their lecture sessions as we thought they might be. The biggest criticism seemed to be reflected in their comments about "wasted time." It may be that longer range objectives do not figure prominently in a somewhat myopic view of students to successfully complete their exams. In this context, it is important to remember that the postmodern student who "despises above all theoretical constructs so vague as to be irrelevant to anyone outside the discipline"[1] is skeptical of authority and visual learners. These students also have "an entirely different set of values, including an absence of inherent respect for authority, a willingness to demand that information be both relevant and entertaining, and above all else a need for all their interactions to be personal, including those that over the ages have remained strictly professional."[1] In short, these students demand that the teacher-student interaction be different and, as part of that, that different instructional approaches be used. Awareness and recognition of this led to the incorporation of active learning strategies in the fond hope that it might appeal to their varied ways of learning. Although the students enjoyed the interaction, some of the students did not see a benefit to their learning and felt that it detracted from traditional lecture time. Students, though alerted and prepared for these "new" activities, still felt

uncomfortable exploring and breaking new ground as opposed to the traditional lecture format which with they are both familiar and extremely comfortable. The perception of "wasted time" and lack of recognition of learning in group work need to be addressed as these students have to be comfortable in a "team" approach for their future professional careers. This is not atypical; students are resistant to active learning techniques because "they have not been trained to cooperate in the academic environment."[14] Students may feel that the lecture method is easier for them because they can remain passive in a way they are comfortable with and to which they are accustomed.

This exploration has also raised the question of the organizational climate toward wider instructional methodologies. If some instructors are concerned that they do not have enough time to "cover the content"[15] then any time spent not directly transmitting content from instructor to student may be interpreted as a waste of time, and not recognized as "teaching." The appearance of anything other than a lecture being not serious teaching[14] hinders the involvement of students in their own learning. Medical education has an historical and traditional texture that is familiar and comfortable to both faculty and students. In addition to taking a great deal of effort on the part of the instructor, changing this seems to raise the level of anxiety among students who think that they may not be getting what they need to "pass the exam." It is the final exam which seems to drive the students' involvement with instruction.[16] and this raises the question of the learning styles and study habits of this particular group of students which may be different from an average group of undergraduate university students. Such knowledge of learning styles and study habits may help to choose active learning strategies that enhance the learning experience for the students while addressing content and process objectives. This will be the subject of future study.

Conclusion

In summary, active learning strategies can be incorporated in the delivery of pathology education as a renovation of the traditional undergraduate medical curriculum. The adoption of such strategies does need the flexibility, time, and effort of both the instructor and the participating students, and is an embrace of the spirit of exploration. Some students were somewhat resistant to change and some students seemed to equate "teaching" with "lecture" and any other modes were interpreted as non-teaching activities. Some students tolerated the activities rather than being actively engaged in the same. The perceived immediate benefits need to be observed in relation to the extra effort required to teach in this way for the current climate of medical students in our school in addition to designing studies to examine the potential long term benefits of including these strategies in undergraduate medical education. The long-term effectiveness of incorporating metaphor and analogy, and summarization techniques such as the fishbone with interpersonal skill development as objectives along with content objectives, however, may only become apparent when these students function as doctors in team-oriented, patient-centered clinical practices.

References

1. Fowler, G. Postmodernism: this changes everything! *The journal of student centered learning.* 2003; 1(2): 87-95.
2. Smith, P. Curricular transformation: why we need it, how to support it. *Change.* 2004; Jan/Feb: 28-35.
3. Smith, P. Curricular transformation: why we need it, how to support it. *Change.* 2004; Jan/Feb: 28-35.
4. Nelson, C. Student diversity requires different approaches to college teaching, even in math and science. *American behavioral scientist.* 1996; 40 (2): 165-175.
5. Wlodkowski, R. Fostering motivation in professional development programs. *New directions for adult and continuing education.* 2003; Summer(98): 39-47.
6. Jamshidi, H. and Cook, D. Some thoughts on medical education in the twenty first century. *Medical Teacher.* 2003; 25: 229-237.
7. Salas, E., Burke, C., Bowers, C., and Wilson, K. Team training in the skies: Does crew resource management training work? *Human Factors.* 2001; 43: 641-674.
8. Leipzig, R., Hyer, K., Ek, K., Wallenstein, S., Vezina M., Fairchild, S., Cassel, C., and Howe, J. Attitudes toward working on interdisciplinary healthcare teams: a comparison by discipline. *Journal of the American Geriatrics Society.* 2002; 50: 1141-1148.
9. Wright, W. and O'Neil, M. Perspectives on improving teaching in Canadian universities. *Canadian journal of higher education.* 1994; XXIV(3); 26-57.
10. Kemmis, S. Action research. In J. Keeves & G. Lakomski (EDS.), *Issues in educational research.* 150-160. New York: Pergamon. 1999.
11. Terenzini, E. and Pascarella, P. Living with myths: Undergraduate education in America. *Change.* 1994; Jan/Feb: 28-32.
12. Russell, I., Hendricson, W., and Herbert, R. Effects of lecturing information density on medical student achievement. *Journal of Medical Education.* 1984; 57: 881-889.
13. Zull, J. *The art of changing the brain: Enriching teaching by exploring the biology of learning.* Stylus Publishing: Sterling, VA. 2002.
14. Panitz, T. Why more teachers do not use student centered learning techniques and policies needed to encourage positive changes. *The journal of student centered learning.* 2003; 1(2): 55-60.
15. Nelson, C. What is the most difficult step we must take to become great teachers? *The National Teaching and Learning Forum.* 2001; 10(4): 10-11.
16. Biggs, J. *Teaching for quality learning at university: What the student does?* Buckingham, UK: Society for Research into Higher Education and Open University Press, 1999.

COMMENTARY

Multiple Intelligences in Undergraduate Medical Education

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ABSTRACT

Given that the physician's role today, in comprehensive health care management, is expanding to include managerial, collaborative, and teaching components in their regular practices, and given our increased knowledge about the relationship between conscious and unconscious learning and memory, it is time to question whether the "one size fits all" didactic lecture that merely transmits information as the primary instructional strategy is the best approach for preclinical medical education. Gardner's Multiple Intelligences Theory offers a framework for actively learning complex medical concepts. We can construct instructional processes for the multiplicity of learners, with identical content, by applying the various multiple intelligences.

Our interest in this area was initiated from varied student responses to alternative active learning strategies as part of the curriculum redesign for undergraduate pathology classes at the University of Saskatchewan. Over the last two years, in an attempt to understand these varied responses, information has been gathered from the students (88, 90) about their intelligences, using a readily available and accessible multiple intelligences inventory.

This Multiple Intelligences Inventory revealed that the disengagement of approximately one third of students from the process of learning may have been linked to active learning strategies incongruent with their preferred intelligences. The instructor used this information to redesign lessons incorporating different active learning strategies with the hope of engaging more students and fostering student self-awareness of their preferred intelligences.

Students differed substantially in their intelligences from year to year (highlighting the varied multiplicity of intelligences present in a student population) and because of this, no one teaching strategy or method is ideal necessitating the ongoing negotiation of instructional methods. There is a richness that occurs with incorporating varied strategies. Awareness of multiple intelligences and students' unique intelligences will enable the educator to design/redesign lessons that will improve the learning environment.

Current State

In our medical school, medical education instruction is predominantly a "one size fits all" approach. Generally an instructor enters the class or lecture theatre, moves to the front of the room, and begins the Power Point slide show. The topic for the day is "covered" and the students leave for the next class where another instructor moves to the front of the room, introduces another topic, and refers the students to the handout of the overheads to follow along with the upcoming presentation. Occasionally an instructor may ask a question or invite students to take a few minutes to discuss an idea with their colleagues. This format, with small variations, has been traditionalized over the years to the point that students and instructors have come to expect this as the norm and template for instruction. However, it is time to question whether didactic lecture, with or without its variations, is the best template for medical education today.[1-8]

Changing roles

The physician's role in the 21st century has expanded to address the public's expectations of a qualified doctor, technological advances, and competencies advocated for all physicians as is regulated, in Canada, by the Royal College of Physicians and Surgeons' CanMEDS competencies.[9]

Herein, the medical "expert" (i.e. the doctor) has to be fluent in many other skill sets and appropriate attitudes that include health advocate, manager, communicator, collaborator, professional, and scholar to have an understanding of disease prevention, health promotion, information technology and other new aspects of medical practice. The role of undergraduate medical education today has to evolve to provide the appropriate education for future physicians who are but one facet in a multi-disciplinary health management team as it is evolving in UK, Canada, USA, and Australia. In view of this, it is well-recognized in today's world that undergraduate medical education needs to be revisited and revised to include instruction to develop and incorporate these other skills and competencies as described above. [1-9]

Learning and memory

Specific parts of the brain related to making different and various memories including working memory, long term memory, procedural memory, and episodic memory may be stimulated in different ways. [10, 11] The value of the existing instructional paradigm of the lecture format is challenged given this information about how we learn and remember. This then raises the possibility of incorporating varied instructional strategies for the delivery of medical education to enhance and strengthen these memories. In 1983, Howard Gardner introduced his theory of Multiple Intelligences. [12-14]

Dr. Gardner suggested that the traditional notion of intelligence based on intelligence quotient (I.Q.) testing was far too limited. The tenets of Gardner's theory [12-14] are that a) each intelligence can be symbolized, b) each intelligence has its own developmental history, c) each intelligence is vulnerable to impairment through insult or injury to specific parts of the brain, and d) each intelligence has its own culturally valued end state.

He has proposed, to date, nine different intelligences to account for a broader range of human intelligence potential in children and adults. These intelligences are:

1) linguistic intelligence ("word smart"),
2) logical-mathematical intelligence ("number/reasoning smart"),
3) spatial intelligence ("picture smart"),
4) bodily-kinesthetic intelligence ("body smart"),
5) musical intelligence ("music smart"),
6) interpersonal intelligence ("people smart"),
7) intrapersonal intelligence ("self smart"),
8) naturalist intelligence ("nature smart"), and
9) existential intelligence ("'big picture' smart").

Such varied intelligences are important to recognize in planning for the classroom experience. This information has been used in elementary and secondary educational settings, [15] but has not been explored at the post-secondary level, including medical education.

Unconscious learning. Students gravitate to their preferred modes of learning unconsciously when they study. [15] These preferential styles of learning may be closely linked to their personalized effective memory tools which in turn could be related to their preferential intelligences. Over time, students most likely have figured out how they learn best from their previous experiences in formalized education. They may then use this information, perhaps unconsciously, to self-guide and maximize their study time. This understanding of student learning styles may be used when developing curricula, planning specific course instruction in medical education, and providing guidance to students on how to study effectively given the voluminous medical content.

Intentional capitalization on the unconscious through instructional variety. Changes in student demographics, (e.g. ethnic background, age, and participation patterns), [16] it is important for instructors to pay attention to the different ways in which students learn. If instructors have a foreknowledge of multiple intelligences, they can provide a richer learning environment for students by using a wider variety of instructional methods (e.g. cooperative and small group learning, incorporating analogy and metaphor, concept mapping, and study guides). Thomas Armstrong indicated, "you don't have to teach or learn something in all [eight] ways, just see what the possibilities are, and then decide which particular pathways interest you the most, or seem to be the most effective teaching or learning tools. The theory of multiple intelligences expands our horizon of available teaching/learning tools beyond the conventional linguistic and logical methods used in most schools (e.g. lecture, textbooks, writing assignments, formulas, etc.)." [17] In this context, little attention has been paid to multiple intelligences in the construction, delivery, and teaching of the undergraduate medical curriculum. In the practice of medicine in North America, using this framework of Multiple Intelligences theory may provide a way to address the expanded objectives for undergraduate medical education while offering more accessibility to complex medical information to students. This in turn will promote education for understanding.

Our interest

Our interest in this area began when we incorporated active learning strategies as part of the mandated curricular change in undergraduate pathology classes at the University of Saskatchewan. The targeted group of Year 2 medical and dental students responded to these changes with varying degrees of enthusiasm that ranged from strongly positive to decidedly negative. We were curious about the possible reasons for this phenomenon. The students, who were very positive about the changes, felt they were benefiting from the strategies that were being incorporated, while others just wanted a "good old stand up traditional lecture." In this context, we wondered if their personal learning styles were having an effect on their receptivity to these changes. The instructional coach (# Mills), a PhD candidate from the College of Education, suggested using Gardner's multiple intelligences as a baseline framework for understanding the learning styles in the group.

What we did initially

Based on this hypothesis, a simple, readily available, and easily accessible Multiple Intelligences Inventory (Appendix

A) was distributed in class, explained, and completed by the students halfway into the course. This task was received with curiosity and enthusiasm by the students. We got "buy in" for the completion of the task by showing how a) this could be helpful as a first step of the awareness of their future patients' varied learning styles, b) this would lead to increased self-awareness of their own personal ways of learning, and c) the instructor could use this information to improve and personalize instruction. The entire class (90 students) completed the survey. These were then collated and analyzed. This information was reported back to the students and used by the instructor to design future lessons incorporating strategies that more closely aligned with their preferred intelligences.

What we found

The results of the Multiple Intelligences Inventory indicated that the strategies being used by the instructor were congruent with the preferred intelligences of approximately one third of the class. However, the primary ways in which students indicated on the inventory that they learned best had not been incorporated. The strategies of analogy and metaphor, concept mapping, small group discussion, creating tables and drawing that had been consciously incorporated by the instructor were slanted towards linguistic intelligence ("word smart"), logical-mathematical intelligence ("number/reasoning smart"), spatial intelligence ("picture smart"), and interpersonal intelligence ("people smart"). Other forms of multiple intelligences such as bodily-kinesthetic intelligence ("body smart"), musical intelligence ("music smart"), and intrapersonal intelligence ("self smart") were not represented in these innovative techniques yet they could be incorporated in teaching pathology. Analysis of the students' survey revealed that up to one third of the class showed a preference for the latter group of intelligences. It may be that this group of students felt disengaged from the process of learning although there was no overall difference in their academic performance. However, insight of this knowledge was useful to the instructor in attempting to redesign instruction for the next group.

What we re-did

As other forms of multiple intelligences such as musical intelligence, bodily-kinesthetic intelligence, and intrapersonal intelligence were not represented in the predominantly linguistic, logical-mathematical, spatial, and interpersonal intelligences based teaching strategies, we redesigned lesson plans with changes in instructional strategies hoping to better reflect the preferences indicated by these students. For example, to address the musical intelligences we incorporated audio files (sounds of a fetal heart beat for stem cells, football stadium clips to link to sports analogy for inflammation, and Magic School Bus video series episode dealing with sore throat and inflammation). In addition, the instructor, once aware of the various intelligences such as bodily-kinesthetic intelligence and musical intelligence, was better able to understand and accept behaviors such as knitting in the classroom or students listening to music on headphones during the classroom presentation. When at one time the instructor may have been indifferent or offended by these behaviors, she was now able to capitalize on these preferences and use them to advantage for teaching and learning. To accommodate the intrapersonal intelligence preferences students were encouraged to (a) reflect on their participation in the class by brief questionnaires and (b) summarize each class by listing three key points.

The following year, curious about the whole area of multiple intelligences in undergraduate medical education, we distributed the inventory twice; once at the beginning of the pathology class to establish a baseline to guide planning, and then again distributed the survey at the midway point to see if the intelligence patterns changed in the class within one group and to increase the students' exposure to and awareness to multiple intelligences theory. We hope such reflective exercises may contribute to developing self-awareness and self-assessment to aid in self-directed approaches to learning.

What we then found

The responses to the Multiple Intelligences Inventory varied greatly from one year to the next. In the second group of students, having done the initial survey and then encountering the survey a second time, there seemed to be an increase in awareness and interest. Several students asked for more information on multiple intelligences while others were curious about other ways of discovering learning preferences. It appeared that this activity contributed to enhancing self-awareness and self-assessment, tools required for self-directed approaches to life-long learning.

The instructor incorporated a self-directed independent learning component in the course by assigning the reading of two journal articles related to the course content introduced in class. Knowledge of the material was tested both formatively by students handing in article summaries and summatively with questions at the midterm exam. This activity was not favorably received by approximately 30% of the students; some indicated that this was too much work outside of class and that this information should have been included by the instructor in the traditional lectures. The response of the students may indicate a need for more activities that encourage, engage, and foster the skill of self-direction for independent learning as the assigned contact time with students is shrinking in the current climate of medical education.

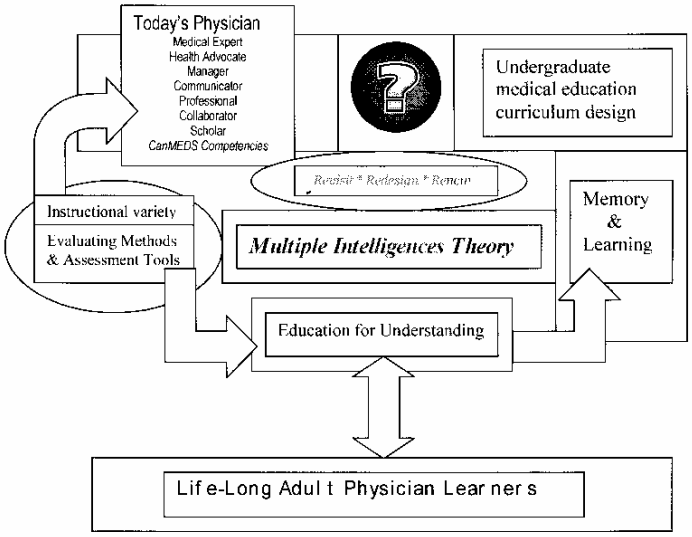

Figure 1. Schema for Medical Education Based upon Multiple Intelligences Theory

By introducing self-directed activities at the undergraduate level, it is hoped that when these students become physicians, these skills will have become internalized and implicit in their day to day practice. The transmission of medical content is only one of the multiple objectives for today's medical education program due to the democratization of information through technology and the ever-changing roles of the physician; thus the transmission of medical content solely by "the good old stand-up lecture" is no longer tenable.

Summary and Suggestions

Multiple intelligences have been incorporated in teaching methods and curriculum design in elementary and secondary education. [15] This commentary contributes another perspective for consideration. Knowledge of multiple intelligences could enhance medical education by incorporating varied instructional strategies such as cooperative and collaborative group activities, analogy and metaphor, concept mapping, small group discussion, and creating tables and drawing. This will broaden the horizons and spark discussions about the redesigning of medical education curricula. Further research may include the study of the link between the incorporation of various instructional strategies and multiple intelligences, and/or a longitudinal study to track trends of intelligences in the medical student population. In summary (Figure 1), we suggest that:

1. Knowledge of Multiple Intelligences theory can be used in the design of undergraduate medical curricula by encouraging a variety of instructional methods "to achieve more personalized curriculum, instruction, and assessment."[18] This can help foster undergraduate medical education students' skills of self-awareness, self-assessment, and self-direction in becoming
2. effective life-long adult physician learners. Instructional variety will also aid and nurture CanMEDS competencies [9] through the processes used to teach these complex medical concepts. While the content of medical education remains the same, it is the process of instruction that is the variable.
3. Varied and appropriate assessment tools and evaluating methods will need to be designed to mirror and complement the varied instructional strategies utilized in the classroom setting to address the expanding physicians' roles.
4. Use of a wide variety of instructional strategies may promote effective dissemination of complex medical concepts with better understanding by students ("Education for understanding").[18] Administrative

and infrastructural support is crucial to achieve this instructional change.

REFERENCES

1. Fowler, G. Postmodernism: this changes everything! *The Journal of Student Centered Learning*. 2003; 1(2): 87-95.
2. Smith, P. Curricular transformation: why we need it, how to support it. *Change*. 2004; Jan/Feb: 28-35.
3. Nelson, C. Student diversity requires different approaches to college teaching, even in math and science. *American Behavioral Scientist*. 1996; 40 (2): 165-175.
4. Jamshidi, H. and Cook, D. Some thoughts on medical education in the twenty first century. *Medical Teacher*. 2003; 25: 229-237.
5. Wright, W. and O'Neil, M. Perspectives on improving teaching in Canadian universities. *Canadian Journal of Higher Education*. 1994; 24(3): 26-57.
6. Terenzini, E. and Pascarella, P. Living with myths: Undergraduate education in America. *Change*. 1994; Jan/Feb: 28-32.
7. Panitz, T. Why more teachers do not use student centered learning techniques and policies needed to encourage positive changes. *The Journal of Student Centered Learning*. 2003; 1(2): 55-60.
8. Nelson, C. What is the most difficult step we must take to become great teachers? *The National Teaching and Learning Forum*. 2001; 10(4).
9. The Royal College of Physicians and Surgeons. CanMEDS (Canadian Medical Education Directions for Specialists). Available at URL (accessed May 2, 2005) htpp:// repsc.medical.org/canmeds/index.php CanMeds Project Summary 2003; CanMEDS 2000 Project.
10. Budson A.E. and Price B.H. Current concepts in memory dysfunction. *The New England Journal of Medicine* 2005 Feb 17; 352 (7): 692-9.
11. Shreeve, J. Beyond the brain. *National Geographic* 2005 March; 207 (3) 2-31.
12. Gardner, H. Frames of mind: The theory of Multiple Intelligences. New York: Basic; 1983.
13. Gardner, H. Multiple Intelligences: The theory in practice. New York: Basic; 1993.
14. Gardner, H. Intelligence reframed: Multiple Intelligences for the 21st Century. New York: Basic; 2000.
15. Ilsich, Ming-Fang. Multiple Intelligences: Theory and Practice in the K-12 Classroom Available at URL (accessed May 12, 2005): http://www.indiana.edu/~reading/ieo/bibs/multiple.html
16. Smith, P. Curricular transformation: why we need it, how to support it. *Change*. 2004 Jan/Feb; (30): 28-35.
17. Armstrong, T. Multiple Intelligences. Available from URL (accessed May 12, 2005) http://www.thomasarmstrong.com/multiple intelligences.htm
18. Garner, H. Copyright 2003 by the President and Fellows of Harvard College. Available from URL (accessed May 12, 2005) http://pzweb.harvard.edu/PIs/HG.htm

APPENDIX A
(Multiple Intelligences Inventory Sample)

A Simple Multiple Intelligence Inventory (http://homepages.wmich.edu/~buckleye/miinventory.htm)

Put an "x" (x) next to those statements which basically are true about you.

LINGUISTIC INTELLIGENCE (Language, speaking, writing, etc.)

1. ___ I love books.
2. ___ I can mentally hear words even before I speak or write them.
3. ___ I often enjoy radio, CD's, and recording more than TV, movies, or plays.
4. ___ I like word games like Scrabble, Yahtzee, Anagrams, Crosswords, etc.
5. ___ I like to recite tongue twisters, silly rhymes, and puns.
6. ___ People often ask me to speak in common vernacular so the can understand me.
7. ___ English, and classes based on reading (like history) are generally easier for me than math or science.
8. ___ I read the billboards on the highway more than I look at the scenery.
9. ___ I often talk about things I've read or heard (more than what I've seen, or done).
10. ___ am proud of what I write. Sometimes I get special recognition for my writing.

SCORE: ____

Logical-Mathematical Intelligence (LM), (Math and Science)

1. ___ I can easily compute numbers in my head.
2. ___ Math and/or science are among my favorite school subjects.
3. ___ I enjoy games and brainteasers that involve math.
4. ___ I enjoy creating little "what if" experiments. (e.g. How much can I save if I skip buying desert at lunch for a week? What will happen to my average if I score below a 90% on this test?)
5. ___ My mind searches for and finds patterns, rules, or logical sequences in things.
6. ___ I'm interested in new developments in science.
7. ___ I believe that almost everything has a rational explanation.
8. ___ I sometimes think in abstract concepts (rather than words or images).
9. ___ I like finding logical flaws in things people say or do (this doesn't mean being negative).
10. ___ I feel I know something better when it has been measured, categorized, analyzed or quantified in some way.

SCORE___

Spatial Intelligence (Art, Design, etc.)

1. ___ I often see clear visual images when I close my eyes.
2. ___ I am sensitive to color.
3. ___ I like to take pictures with a camera or camcorder.
4. ___ I like jigsaw puzzles, mazes, or other visual puzzles.
5. ___ I have vivid dreams at night.
6. ___ I can generally find my way around when I am in new places.
7. ___ I draw and doodle.
8. ___ I like geometry better than algebra.
9. ___ I can easily visualize a birds-eye view of a location.
10. ___ I prefer books and reading materials that have lots of illustrations.

SCORE ___

Bodily-Kinesthetic Intelligence (dance, gymnastics, sports, etc.)

1. ___ I participate in at least one sport or physical activity on a regular basis.
2. ___ I find it difficult to stay still for long periods of time.
3. ___ I like to use my hands creatively at activities such as sewing, or carving, carpentry or model building.
4. ___ My best ideas often come to me when I am out for a long walk, jogging, working out, or engaged in some other physical activities.
5. ___ I often like to spend my free time outdoors.
6. ___ I use hand gestures and body language when I talk to people.
7. ___ I like to hold or touch things to learn more about them.
8. ___ I like the daredevil rides (like roller coaster) at amusement parks, and other thrilling experiences (like surfing, or mountain biking).
9. ___ I am well coordinated.
10. ___ To learn a new skill I need to do it, rather than just hear about it or see it done.

SCORE ___

Musical Intelligence

1. ___ I have a good singing voice.
2. ___ I can tell when a note is off-key or out of pitch.
3. ___ I listen to music a lot.
4. ___ My life would be much less happy without music.
5. ___ I often have a tune running though my mind.
6. ___ I can easily keep time with a song, tapping, playing a percussion instrument, etc.
7. ___ I know lots of melodies to songs or musical compositions.
8. ___ If I hear a song once or twice, I can usually play or sing most of the melody.
9. ___ I often make tapping sounds or sing or hum when I am studying or working.
10. ___ I play a musical instrument.

SCORE:

Interpersonal Intelligence (political, leadership, public relations, etc.)

1. ___ People come to me for advice, or to tell me their worries.
2. ___ I prefer group sports (like soccer or football) to solo sports (like jogging or swimming).
3. ___ I seek out friends of professional help (teachers, counselors, etc.) to help me solve my problems rather than trying to work it out by myself.
4. ___ I have at least three close friends.
5. ___ I prefer social games such as Monopoly or Magic over individual recreation like solitaire or video games (when played alone).
6. ___ I like to contribute ideas or projects in class, and I like to show others how to do things.
7. ___ I am a leader.
8. ___ I like being in a crowd.
9. ___ I like to get involved with clubs and other social gatherings.
10. ___ I'd rather spend my evenings at a party or with friends than be at home by myself.

SCORE:

Intrapersonal Intelligence (Insightful, spiritual, sympathetic)

1. ___ I like to meditate, pray, or just think about things
2. ___ I have received counseling or gone to groups to learn more about myself.
3. ___ I am able to handle setbacks. I am resilient.
4. ___ I have a special hobby or interest that keeps me pretty much to myself.
5. ___ I have a clear idea of who I am and what my talents or weaknesses are.
6. ___ I have personal goals which I think about often.
7. ___ I am insightful and can sympathize or empathize with other people's feelings.
8. ___ I am strong willed and independent.
9. ___ I keep a diary or journal of my inner life (thoughts and feelings.)
10. ___ I prefer school assignments that allow me to chose what I want to do.

SCORE: ___

Please copy all your scores below.

Linguistic _____	Logical	Spatial _____
Kinesthetic _____	Musical _____	
Interpersonal _____	Intrapersonal _____	

Using Metaphors, Analogies and Similes as Aids in Teaching Pathology to Medical Students

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ABSTRACT

Metaphors, analogies, and similes bridge the known to the unknown, and alter the conceptual system of existing knowledge by modifying and strengthening its associations. Although the use of metaphors, analogies, and similes is pervasive in our language, not much has been written about its use as a potential active teaching strategy in medical education to explain complex or abstract concepts. Metaphors, analogies, and similes were used intentionally in two consecutive years of an undergraduate pathology course for medical and dental students for two purposes: a) to communicate and understand complex concepts such as those related to acute and chronic inflammation, thrombosis, embolism and infarction; and b) to provide practice for students to become better communicators of complex medical concepts using these strategies. Students found that working with metaphors, analogies and similes enhanced and aided their learning, and challenged their communication skills. The unexpected impact of creating visual metaphors had a unique potential for improving recall of information. The discussion and negotiation of metaphors can be used in medical education as an effective teaching strategy to augment communication skills towards a better understanding of complex medical concepts. This, in turn, may aid students in becoming effective communicators with their prospective patients.

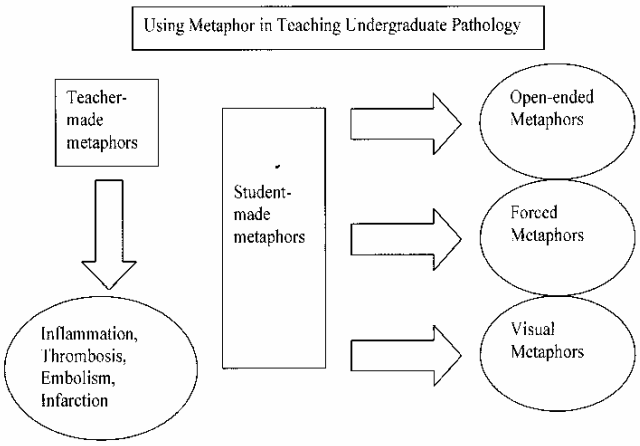
INTRODUCTION

Although the use of metaphors, analogies, and similes is pervasive in our language, not much has been written about its use as a potential active teaching strategy in medical education. A metaphor is defined as a figure of speech in which a word or phrase that ordinarily designates one thing is used to designate another, thus making an implicit comparison, as in "a sea of troubles" or "All the world's a stage."[1] An analogy on the other hand shows similarity in some respects between things that are otherwise dissimilar and a comparison is based on such similarity as in "the operation of a computer presents an interesting analogy to the working of the brain."[2] In contrast, a simile is a figure of speech in which two essentially unlike things are compared, often in a phrase introduced by *like* or *as*, as in "How like the winter hath my absence been" or "So are you to my thoughts as food to life."[3] In the context of this article and in our teaching, we use the terms metaphor, analogy, and simile interchangeably.

The essence of a metaphor is the process of understanding and, perhaps, experiencing one kind of thing in relation to another.[4] Metaphors can facilitate communication by providing something tangible in terms of other more familiar concepts to an otherwise abstract complex medical concept. Metaphors also have the potential to bridge understanding between the known and the unknown, and alter the conceptual system of existing knowledge to modify and strengthen its associations. As such, metaphors may be used as an effective tool to enhance the understanding of complex and abstract patho-physiological processes.[5] Metaphors can also create rapport[2] with students when a known concept, something from their world, is linked with something foreign. Well chosen metaphors provide a connection to that which the students already knows, and offers order to the chaos of the new language and unfamiliar concepts.[6] Perceived order enhances learning. Aristotle compared metaphors to puzzles, and as puzzles, metaphors engage us in solving how one thing is like another.[4] It is this engagement in the process of resolution that makes the use of metaphors so valuable in conveying and understanding complex concepts. This is particularly valuable in the case of medical education wherein new vocabulary with highly refined language is being introduced.

Although some metaphors can be more obfuscating than illuminating, there are simply degrees of appropriateness in the metaphor encapsulating the qualities of the new concept that is being learnt.[4,7] When students develop their own metaphors for new concepts (providing they have a fairly good understanding of the concept), they further strengthen

Figure 1. Outline of the intentional use of metaphors in the instructional teaching of pathology to undergraduate medical students.



their understandings because they are (a) negotiating the appropriateness of the metaphor they are working with, and (b) arranging their understandings in personally meaningful ways.[5]

Metaphors were used intentionally in teaching undergraduate pathology to medical and dental students for two consecutive years (Figure 1). The principle intentions included:

1. Incorporating open-ended, forced, and visual metaphors to teach complex concepts (e.g. acute and chronic inflammation, thrombosis, embolism and infarction);
2. Involving students in a creative dynamic thought process to enhance understanding of such complex medical concepts; and
3. Providing students with a forum to practice the communication of complex medical concepts through the joint exploration of metaphors, analogies, and similes in terms of other things with which they were more comfortable and familiar.

Materials and Methods

This study was initiated and carried out by the course coordinator in keeping with her ongoing interest in developing a repertoire of instructional methodologies that engage medical students in their own learning. The instructor has worked on this project with a coach and co-author of this paper, a doctoral candidate in Educational Administration, as part of their on-going interest in active learning in the medical curriculum.[7]

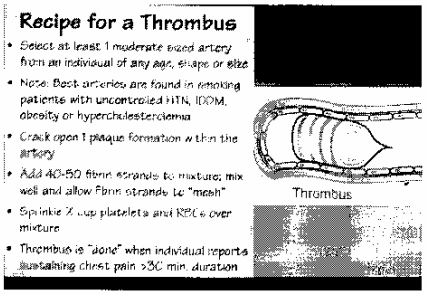
This instructor, who intentionally incorporated metaphor, analogy and simile, taught 13 of the 22 classes in the Year 2003 and 12 of the 22 classes in the Year 2004. In both years, these sessions formed a block series of lectures occurring from the beginning of the course to the midterm exam thereby maintaining continuity of communication. During the first year of study there were 88 students enrolled in the 6-credit course: 60 second year medical students, 26 second year dental students, and 2 graduate students. During the second year of study there were 63 second year medical students, 27 second year dental students, and 2 graduate students.

Instructional Metaphor Examples

The instructor first modeled the use of metaphors by peppering her traditional lecture with explicit metaphorical and analogous examples:

1. For inflammation, the instructor used a sports analogy. Although starting with tennis, a game she is familiar with, she quickly made a switch to football and hockey when it became apparent that the intricacies of tennis were not familiar to many students. She discussed the medical concepts of exudation, transudation, edema, and pus by using the sports vernacular and language (i.e. game strategy plans). She indicated how the game strategies paralleled those of the body in inflammation in terms of:

Figure 2. Recipe card for thrombosis.



- where the sport or game was played. The vascularized connective tissue became the playing field;
- the teams were Team A (the circulating cells in vessels -neutrophils, eosiniphils, basophils, and platelets) and Team B (the connective tissue cells -- mast cells, resident macrophages, and lymphocytes); and
- the extracellular matrix, composed of structural fibrous proteins, adhesive glycoproteins and basement membranes, became the "reserves" on the "bench."

The instructor likened the "quick kill" of acute inflammation to a "blow out" in hockey as opposed to chronic inflammation that resembled repeated overtimes in hockey. In tennis, chronic inflammations, like persistent infections and autoimmune diseases, were described as more closely resembling the prolonged agony of a 5 set tennis match with alternating deuce/match points, while, acute inflammation was likened to winning in three straight sets.

2. The pathogenesis of thrombosis was demonstrated using a toilet roll for a vessel lumen with "Smarties" as cells-- *white* blood cells, *red* blood cells, and *blue* platelets -- stuck to its interior. This actual model was held up as it was created and explained in class. A glue stick was used to "injure" the endothelium so that different cells could "stick" to the inside. The fibrin mesh was illustrated with red "Twizzlers." A recipe card for thrombosis was shown concurrently. (Figure 2)
3. For embolism, the students were asked to create three scenarios for the "perfect murder" using the principles of embolism.
4. Thrombus / Infarction became a plumbing blockage or the "loo" getting blocked. Students were presented with a situation where a tennis ball had found its way into the "S" shaped bend of the toilet bowl. As it absorbed water, it caused the flush to act in unpredictable ways. The ball intermittently obstructed the "flow" with the final result being a complete breakdown and an almighty flooding mess. This process was likened to the fate of a thrombus resulting in the various possibilities ranging from no effect to intermittent blockage to full blown infarction with complete breakdown of normal structure and order.

Student-developed Metaphors

As classes progressed, students were asked to work in small, informal groups to develop visual and verbal metaphors that linked the pathology concepts being presented in the lecture to common visual or verbal concepts. As well as providing a break in the flow of lecture information, it gave students an opportunity to reflect, discuss, and incorporate new concepts into their existing conceptual paradigms. The students had time in class to negotiate metaphors that illustrated the concept through these dialogues. For the verbal metaphors, students were asked to consider how the concept was like x and not like x. In the "open-ended metaphor," students were given the abstract medical concept, and were free to choose and develop the analogue for the concept. For "forced" metaphors, all students worked with the same analogue. They were given both the concept *and* the other half of the metaphor to which they had to provide supporting evidence for the analogue.

"Visual metaphors" were developed and explained through drawings and pictures that were not intended to be literal representations of the concept. It was hoped that exploring and negotiating the characteristics of new complex medical concepts through discussion and dialogue with metaphors would help to cement these ideas while providing a model that could be used to clarify medical complexities with patients in the future. Students worked in groups to choose an analogue, discuss and negotiate its merits, and then draw it. The drawings were collected at the end of the class and reviewed by the instructor. In this way, the instructor could clear up any misconceptions. Samples of the student responses to the activities were often shared with the large group at the beginning of the next class. Students requested to hear how others had responded and sharing these responses seemed to spark enthusiasm in class.

Data Gathering.

We gathered student responses to the inclusion of metaphors at different points in each class as part of our on-going investigation into the inclusion of active learning. As the instructor had no further direct teaching responsibilities in this course after the midterm, in both years, the students' perceptions of incorporating analogy and metaphor were gathered in the Midterm Evaluation/Reflection questionnaire[7] at the midterm exam. In Year 2003, the questionnaire included room for open-ended responses about the positive, the negative, and the interesting aspects of the course. There was also space for "other" comments. In Year 2004, the questionnaire had no open-ended questions. The questionnaires were collated and the comments were

Figure 3. Examples of student developed open-ended metaphors, analogies, and similes on acute inflammation.

Acute inflammation is ***like*** the ARMY because…
1. There's a 1st line of defense (soldiers) → circulating cells in vessels
2. 2nd line of defense: artillery (CT cells)
3. Army reserves (extracellular matrix)

Acute inflammation is ***not like*** the ARMY because…
1. Soldiers won't fight until ordered to (inflammation occurs naturally)
2. Both sides kill each other, both sides die (Microorganisms and leukocytes phagocytose invading organism but organism doesn't eat leukocytes)
3. In army wars aren't over when opponent dies: peace keeping aftermath etc. (inflammation over once organism resolved).

Acute inflammation is ***like*** WAR because…
1. The "enemy is the bacteria/infection
2. The "soldiers" are the immune response cells who share a common "battlefield" which is the organism
3. There are two sides of the battle (the injury/inflammation and the cells ie. circulating and connective tissue cells) and the two sides possess strategies. The body's cells send certain troops (ie. groups of cell/types of cell) to fight certain battles. For example Eosinophils are sent to battle hypersensitivity.

Acute inflammation is ***not like*** WAR because…
1. Wars usually last a very long time while acute inflammation lasts a short time
2. Wars can end in a truce but there is always a "loser" in acute inflammation
3. There is potential for inflammation to turn on itself the host if it is dysfunctional

Acute inflammation is ***like*** DATING because…
1. Chemokines attract leukocytes ***like*** pheromones attract a partner
2. Pavementing is ***like*** speed dating
3. Leukocyte adhesion is ***like*** marriage in that it usually ends in destruction

Acute inflammation is ***not like*** DATING because…
1. You don't engulf/enter your date
2. Not trying to accumulate as many photrus as possible
3. A roll in the hay is more turbulent than leukocyte rolling along vessel wall

Acute inflammation is ***like*** SEX because…
1. Protection can prevent undesirable consequences
2. Involves stimulus and response
3. Involves chemical attractants, pheremones

Acute inflammation is ***not like*** SEX because…
1. Once the performance is over it can be done again and again
2. Only requires two people as opposed to many parties
3. Inflammation is painful

Acute inflammation is ***like*** SHOPPING because…
1. You roll around looking for something you like
2. When you see it you are attracted and move to it
3. You buy (engulf) it →the pain comes later with the bill

Acute inflammation is ***not like*** SHOPPING because…
1. Shopping you can think it over
2. You don't get swelling usually with shopping
3. Pus is bad when shopping

Acute inflammation is *like* COOKING because…
1. You have to follow the order of adding ingredients as the vascular changes must follow an orderly sequence
2. You have to have the right ingredients and the right mediators/cell types
3. Adding too much baking powder is like having an excessive/out of control inflammatory response

Acute inflammation is *not like* COOKING because…
1. In cooking everybody wins, there is no conflict and hopefully no one gets killed
2. In cooking you can use many recipes to make the same dish but inflammation requires all key players
3. The whole dish is cooked but inflammation is local

analyzed using simple measures such as median, percentages, averages, and range of student comments that were categorized for over-riding themes. Another form of evaluation included a question on the midterm exam directly testing the application of metaphor to the material covered by this instructor. The students' final marks for years 2000-2003 (Table 1) were comparable. This was in keeping with the performance at the midterm as published previously. [7] Therefore, we concluded that the changes in instructional styles did not adversely affect the students' performance as a whole.

In Year 2004, the data collected from this second group of students was more extensive than from the first. It was as a result of the responses of the first group of students that we decided to try this method again and investigate more thoroughly. In addition to the questionnaire at the midterm exam, feedback was garnered from the students in the Year 2004 section halfway to the midterm by asking what they would like to see stopped (STOP), what they would like the instructor to add (START), and what they would like to see continued (CONTINUE).[7]

At the midterm examination the use of metaphors, analogies, and similes as a communication tool for explaining complex medical concepts to patients in clinical practice was also evaluated by written responses generated to short answer questions (SAQs) as seen in the example below:

Figure 4. Examples of student developed forced metaphors, analogies, and similes on acute inflammation to a "TIMBIT".

Acute inflammation is ***like*** a "TIMBIT" because...	Acute inflammation is ***not like*** a "TIMBIT" because...
• like a macrophage, because if you were to put several Timbits together, you would get a doughnut (several macrophages → a giant cell)	• immune cells elicit different responses because of different stimuli (ex; parasite elicits eosinophilic reaction), but Timbits only elicit one response, satiating hunger
• the aroma of Timbits are like chemoattracts because they draw people to them	• inflammation requires energy to be expended, whereas Timbits are a source of energy
• Timbits come in several varieties so do immune cells	• Timbits are not painful
• has a shell of sugar like a granuloma has a shell of epithelioid macrophages	• inflammation is free Timbits aren't (unless they're given out in class)
• variety of cells involved in inflammation just like the variety of flavours of Timbits	• Timbits come in boxes of 20, inflammation comes in any size needed
• timbits are usually associated with other chemical mediators (ie. caffeine)	• chronic inflammation from infection will make you skinny, Timbits make you fat
• Rolling – you can roll the Timbit around in your hand or tongue	• inflammation tastes, smells bad and Timbits tastes, smells good
• People phagocytose timbits just like neutrophils eating antigens	• you can only find Timbits at Tim Horton's, you can find inflammation all over the body
• Timbits are sticky, just like activated leukocytes	• Timbits don't have protein
• You are chemotactically attracted to it and go in for the kill	• Timbits build tissue not damage them
• Timbits and WBCs are round	• Eating a Timbit is enjoyable, inflammation is painful
• Many Timbits marginate and roll in my belly	• Timbits are cold, inflammation is hot
• Adhesion – the glaze from the Timbit wants to sticks to your tongue	• Inflammation is exothermic but Timbit digestion is endothermic
• Chemotaxis – the Timbits presence in your mouth attracts salivary juices from salivary glands	• Leukocyte can be activated and emigrate to the focus of inflammation. Timbit can't move by itself

A 15-year old lad suffering from familial hypercholesterolemia is referred to your clinic for a consultation. Using verbal and / or visual metaphors as practiced in class:

a) Summarize the key concepts of the pathogenesis of atherosclerosis (2 marks); and
b) Explain the etiopathogenesis of this disease including risk factors (2 marks).

Results and Discussion

The following are discussed in this section:

1. Student-developed metaphors;
2. Student reactions to the use of metaphors as an instructional tool;
3. The potential of using metaphor as a communication tool; and
4. Challenges and risks involved in using metaphors.

1. **Student-developed metaphors.** Students in both years participated in the classroom activities with varying degrees of enthusiasm. There appeared to be engagement in the activities and a good deal of productive "buzz" in the lecture theatre during the activities.

Open-ended metaphors. When students were asked to consider three ways in which acute inflammation was like *x* and three ways that acute inflammation was not like *x*, they devised their own metaphors based on things they knew and valued, and were thus able to arrange their learning experiences by strengthening understanding by linking something from their world with the newly presented abstract concepts in personally meaningful ways.[5] The students' metaphors for acute inflammation clustered around 6 main themes:

1.	interpersonal dynamics (including sex/dating)	35%
2.	war and other forms of conflict	18%
3.	regular daily activities	16%
4.	sports (although they had been steered away from this)	14%
5.	natural phenomena	11%
6.	music and concerts	5%

A few examples of student-developed open-ended verbal metaphors for acute inflammation are illustrated in Figure 3.

Students enjoyed hearing what their peers had created at the beginning of the next class and this also served as a review of the concepts of the previous day's class.

Forced metaphors. In class, after small "Timbit" donuts were distributed and enjoyed, students were asked, "How is inflammation like a Timbit? How is inflammation not like a Timbit?" They gave a range of responses (Figure 4). The students, however, seemed less enthusiastic towards this activity in comparison to the creation of open-ended metaphors as revealed in their comments, their hesitation in engaging in the activity, and their overall reluctance to think outside the conventional framework. There may be several reasons for this:

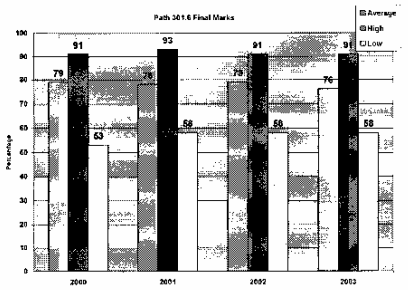
- The comparison may not have resonated with the students.
- The technique may have become over-worked.
- The comparison may not have risen to the potential for it to involve them in working to comprehend the connections.[4]
- They may have felt stifled, trapped, or uncomfortable by the "forced" choice.
- The students may not have understood either half of the metaphor well enough upon these initial introductions to make comparisons and see relationships.[8]
- There may have been a feeling that there was a "right answer" that they were trying to guess, rather than, feeling free to explore and develop possibilities as they had done with the open-ended metaphors.
- Developing open-ended metaphors was a creative activity in comparison to the forced metaphors where students may have felt "restricted."

Visual metaphors. There was a mixed reaction to "drawing" metaphors. There was some "shock" and surprise that this could happen in a university class. There was also enthusiasm for doing something that seemed to be "play." The visual metaphors that students developed for thrombosis, embolism, and infarction fell into 3 main categories: gardening, plumbing, and construction. Figure 5 illustrates examples of their work.

2. Student reactions to the use of metaphor as an instructional tool. Students in both years reported on their learning, and about using metaphors as an instructional and communication tool.

Year 2003. Student responses to analogy and metaphor were varied. Students were asked at the midterm what were the positives, the negatives, and the interesting aspects of the course. Although other comments were directed toward class structure in general, many comments were directed specifically at the inclusion of analogies and metaphors. Of the 39 positive comments, 8 (20%) specifically mentioned analogy and metaphor. Of the 77 negative comments, 6 (8%) specifically mentioned analogy and metaphor, and of the 64 "interesting" comments 18 (28%) specifically mentioned the benefits of analogy and metaphor for "fixing" the

Table 1. Student Final Marks Years 2000-2003



understanding of a medical concept for easy recall at the midterm examination. Many felt that if they drew the concept or were involved in the discussion of the drawing, it helped them to recall the information much easier. However, students were divided in their reactions to being asked to actually "draw" in class. Although only one of the comments was directly negative ("I'm paying $10,000 to draw cartoons"), responses ranged from "interesting" to "threatening" to feeling that it was a waste of their time and that the activity was "childish."

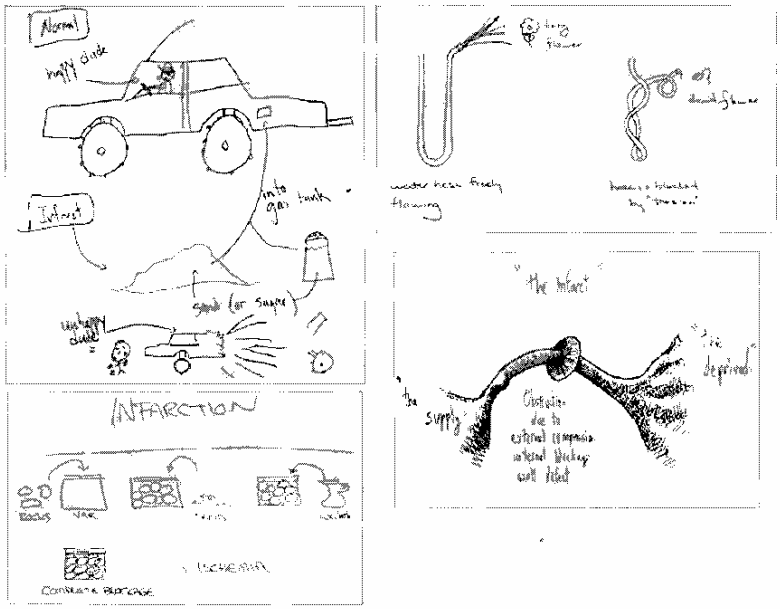
Students explored metaphors in a very different way when they started to draw. They were engaged in a process to clarify their drawings with their peers. When students explored and negotiated metaphors with their peers to reach a consensus, they were in a creative realm which was instrumental in forming new constructs.[9] Negotiating helped them accurately explain the medical concept to the best of their abilities. A metaphor conveys a lot in a succinct way; unpacking the metaphor illuminates the "ineffable."[4] Metaphors generate meaning and aid in understanding anyway,[4] and a visual metaphor has the added advantage of being "visual." Negotiating this through dialogue and discussion with their peers may have also contributed to the learning impact of the visual metaphor.

Year 2004. At the midterm evaluation, response to the statement that analogies introduced by the instructor helped them understand and consolidate the content more thoroughly was as follows (n=86): 17 students "strongly agreed" (20%), 47 students "agreed" (55%), 15 "disagreed" (17%), and 7 students "strongly disagreed" (8%).

Due to the resistant dynamics in the group, these students were not asked to create visual metaphors in the classroom. It was suggested that they might try the technique on their own to see how it worked for them.

3. The potential of using metaphor as a communication tool. Year 2004 students were asked if they had learned any new techniques that might aid in explaining complex

Figure 5. Examples of student developed visual metaphors, analogies, and similes to thrombosis /embolism/infarction.



medical concepts to their patients in the future. Of the 86 responses, 8 "strongly agreed" (9%) (e.g. "relating topics to real life situations –helpful for explaining to patients."), 44 "agreed" (52%), 27 "disagreed" (31%), and 7 "strongly disagreed" (8%). All students attempted the midterm exam question that evaluated this skill. Developing skills in using metaphors at this stage in their careers may help them in the future when they negotiate appropriate metaphors to explain complex medical concepts succinctly and accurately to their patients. The use of metaphors could be considered to be an essential part of the communication skill development and competencies for medical students.

4. Challenges and risks involved in using metaphors. When one thing that is unknown is linked to something that is known, the learner has the benefit of previous understandings and an existing conceptual template in which to embed the new concept. A well-chosen and developed metaphor can illuminate a difficult concept but a weak metaphor may confuse the learner. An ill-fitting, inappropriate metaphor can actually disengage learners[3] by leading them down a conceptual pathway of misunderstanding. It is, therefore, important to clarify the metaphors learners develop to be certain that they are on the "correct" conceptual pathway of understanding.

Independently, a few students made the same observation. Although they felt that they understood the "large picture" of the new concept, they did not feel that they were familiar with the details that made up the larger picture (e.g. "The visual metaphors actually did help me remember basic concepts, but not the fine details"). This has implications for future applications. Global thinking and understanding of a complex medical concept may not lend itself to ultimately putting the concepts into practice. If not checked, students may end up having their understanding of the detailed dynamics that contribute to the big picture overshadowed by a more thorough understanding of the big picture itself.

Students will be aware and conscious of their own use of metaphors and can later tailor this usage to individual patients based on a patient's personal and cultural values and unique presentation of their disease. Just as the instructor changed metaphors "midstream" moving from the less familiar game of tennis to the more familiar game of hockey in explaining acute inflammation, appropriate metaphors that resonate with individual patients are critical.

An instructor's metaphoric skill, imagination, and sensitivity are important in creating a solid learning platform during

this demanding period of medical students' lives. It is useful in the two-way communication that facilitates better understanding of the nature of unshared experiences in the transfer of knowledge and the creation of meaningful learning relationships. In this two-way instructional-communication process, great heights of learning and understanding can be potentially achieved with mutually resonant metaphors and methodologies. Instructors' individual personalities and teaching styles will largely determine the various formats of metaphor exploration. Likewise, students have differing learning styles which will have a significant impact on which methodologies will be useful to them. We recommend incorporating varied instructional strategies of which the intentional use of metaphors, analogies, and similes as an additional method for medical educators to draw upon to accommodate these differences.

In order to suitably tailor the metaphors they use, clinicians and teachers require listening skills to pick up on the specific nuances and language of metaphors used by their patients and students. Metaphors used and practiced in learning can then be transferred to clinical situations to assist in the mutual understanding of the underlying disease processes that may cause illnesses.

CONCLUSIONS

Metaphors can serve as an effective instructional teaching tool for understanding complex medical concepts. In this observational study the salient features observed were:

1. The discussion and negotiation of mutually resonant metaphors can be used in medical education as an ***effective teaching strategy*** to augment and ***enhance interpersonal and communication skills*** for a better understanding of complex, abstract medical concepts.
2. It is important for the medical teacher to ***choose appropriate metaphors*** so students understand the concepts correctly as inappropriate metaphors can lead students down conceptual pathways of misunderstanding.
3. Creating ***visual metaphors*** may have a unique potential for improving recall of information; when students drew the "concepts," both the activity *and* the concepts "stuck" in their minds.
4. Some students found that working with metaphors, analogies and similes enhanced and aided their ***learning***.
5. Exposure to and the practice of using metaphors, similes, and analogies may help students to become ***effective communicators*** in their future clinical practices.

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REFERENCES

1. The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by *Houghton Mifflin Company*. Updated in 2003. http://www.thefreedictionary.com/metaphor
2. The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2003. http://www.thefreedictionary.com/analogy
3. The American Heritage® Dictionary of the English Language, Fourth Edition copyright ©2000 by Houghton Mifflin Company. Updated in 2003. http://www.thefreedictionary.com/simile
4. Fogelin, R. Figuratively speaking. *London: Yale University Press*. 1988.
5. Reisfield, G., & Wilson, G. Use of metaphor in the discourse on cancer. *Journal of Clinical Oncology*. 2004; 22(19): 4024-4027.
6. Metaphor in crisis: The language of suffering. Pain and Suffering Interdisciplinary Research Network. Teucher, U. *University of British Columbia*. 2004. http://www.english.ubc.ca/PROJECTS/PAIN/DTEUCH.HTM
7. Kanthan, R. and Mills, S. Active learning strategies in undergraduate medical education of Pathology: A Saskatoon experience. *Journal of the International Association of Medical and Science Education [JAIMSE]*. 2005; 15 (1): 12-18.
8. Rothstein, E. Emblems of mind: The inner life of music and mathematics. *New York: Times Books*. 1995.
9. Sutherland, J. Communicating abstract concepts by metaphor. *Journal of Nursing Education.*, 2001;*40*(9): 417-420.

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Cooperative learning in the first year of undergraduate medical education

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Abstract

Background: Despite extensive research data indicating that cooperative learning promotes higher achievement, the creation of positive relationships, and greater psychological health for students at all levels in their education, cooperative learning as a teaching strategy is still underutilized in undergraduate medical education.

Methods: A cooperative learning task was introduced as part of the mandatory first Year undergraduate Pathology course. The task was to create an 8.5" × 11" poster summary of pre-assigned content in self-chosen groups of four or five students. On the designated "Poster Day," the posters were displayed and evaluated by the students using a group product evaluation. Students also completed an individual group process reflection survey. An objective evaluation of their understanding was gauged at the midterm examination by specific content-related questions.

Results: Majority (91–96%) of students judged the group products to be relevant, effective, easy-to-understand, and clearly communicated. The majority of the students (90–100%) agreed that their group process skills of time management, task collaboration, decision-making and task execution were effective in completing this exercise. This activity created a dynamic learning environment as was reflected in the students' positive, professional discussion, and evaluation of their posters. The content-related questions on the midterm examination were answered correctly by 70–92% of the students. This was a mutually enriching experience for the instructor and students.

Conclusion: These findings demonstrate that cooperative learning as a teaching strategy can be effectively incorporated to address both content *and* interpersonal skill development in the early years of undergraduate medical education.

Background

The current health care system promotes patient-centered medicine through inter-professional collegiality and teamwork [1-3]. Undergraduate medical education is traditionally structured largely around faculty authority and lectureship which encourages individualistic competitive environments. Extensive research data indicates that cooperative learning promotes higher achievement and greater psychological health for students at all levels in their education, in addition to creating positive interper-

sonal relationships [4] – a fundamental component of effective teamwork. Group work, in its various forms such as collaborative learning, teams, small groups, task teams, problem-based learning groups, case-based groups and others, is not unusual in medical practice and in the final years of clinical training [5].

However, five key elements distinguish Cooperative Learning (CL) from other forms of group work [4,6,7]. These are:

(1) *face-to-face interaction* amongst students and their peers;

(2) *individual accountability* promoting personal responsibility through individual exams or self and peer assessment;

(3) *group processing* wherein group members reflect on the group skill process and make decisions about what to continue and what to change;

(4) *positive interdependence* created through establishing group goals, group tasks, team roles, learning goals, rewards, or shared resources; and

(5) *interpersonal skills* such as decision-making, leadership, trust-building, communication, conflict management, perseverance, and seeking to understand are specifically taught and practiced in this setting.

These distinguishing features of cooperative learning promote student engagement by providing students with opportunities for discussion, problem-solving, consensus building, team building, power sharing, and trust building[7] leading to enthusiasm and a sense of mutuality. The group skills that students practice in cooperative learning activities are transferable to problem-based learning, self-directed learning, and experiential learning which are being increasingly used in undergraduate and post-graduate medical education [5,8,9].

Cooperative learning is a pedagogical teaching strategy designed to promote productive and mutual learning amongst a group of students and "to maximize the learning of all individuals in the group [10]." Students interact in purposively structured heterogeneous groups to support the learning of themselves and others in the same group [11]. Cooperative learning is student-centered, and an alternative to traditional curriculum-driven teacher-centered education. Learners work together in small groups to develop their own answers through interaction and reaching consensus, and *not* necessarily towards a predetermined *right* answer.

Despite the overwhelming positive published efficacy of this methodology for learning to work in teams [12] and in the transfer of knowledge [13,14] cooperative learning as a teaching and learning strategy is still underutilized in higher education such as colleges and universities including undergraduate medical education. Some literature exists regarding the role of cooperative learning in the training of junior hospital doctors [15] and in an elective self-help group class in medical studies [16]. However, there is a paucity of published articles involving the use of cooperative learning in the early years of medical education. Given the overwhelming published benefits of cooperative learning at other levels of education the time was right to explore the benefits of cooperative learning in the first year Pathology course in the revised undergraduate medical curriculum at the University of Saskatchewan.

Aim

The overall objectives for introducing cooperative learning in this Pathology course were to (a) encourage student ownership of learning, (b) shift the learning environment from an individualistic competitive system to a cooperative non-competitive atmosphere, (c) assess the feasibility of incorporating this strategy in the limited contact hours of the content-laden undergraduate medical curriculum, and (d) gauge students' responses to working in groups at this early embryonic phase of their medical careers.

The specific learning objectives for the students, on the other hand, were primarily two-fold: (i) to effectively synthesize the designated content, and (ii) to practice skills of decision-making, time management, consensus-building, trust-building, and group collaboration. As these were first year students of two colleges – medical and dental – we felt it was important for students to get to know each other by working together while learning thereby valuing, honoring, and respecting professional collegial behaviors both in and out of class time.

Methods

The context

Ninety first Year medical and dental students enrolled in the compulsory undergraduate Pathology course at the University of Saskatchewan participated in this study approved by the institution's ethical review committee. The aim of this course was to introduce the students to the general pathological principles and conditions common to the underlying systemic afflictions of the human body as applicable to the real life practices of medicine and dentistry. Students were made aware that they would be actively participating in a variety of instructional experiences that promote and help interweave the threads of understanding which link the pathology of diseases through multiple disciplines relevant to their careers. During the first week of the course, students were introduced

to the philosophy of active learning to encourage student engagement with ownership of learning. They were made aware of course expectations regarding the incorporation of a wide variety of instructional methods which included a) formative evaluation of designated reading assignments, in-class discussions, debates, jig-sawing course material, and b) summative evaluation using multiple-choice and short answer questions on the midterm exam.

The co-operative learning task

The distinguishing feature of cooperative learning is the attainment of two distinct goals: (a) the group creates a viable group product, and (b) that the groups' process maintains the integrity of the interpersonal relationships. In addition, there are five elements that distinguish Cooperative Learning (CL) from other forms of small group learning:

(1) face-to-face interaction (CL1),

(2) individual accountability (CL2),

(3) group processing (CL3),

(4) positive interdependence (CL4), and

(5) interpersonal skill development (CL5).

The cooperative learning task in this study was to create an 8.5" × 11" poster that effectively synthesized the subject content. This was the group product. The group process goals included the interpersonal skills of: effective time management, task collaboration/cooperation, effectiveness of decision-making strategies, and the valued apportioning of individual member's contributions. As indicated above, cooperative learning tasks have five distinguishing features. The relationship of this cooperative learning task is linked with the five distinguishing elements of cooperative learning in Table 1 and is further explained below.

Logistics of the cooperative learning task

1. Students were first informed of this task three weeks prior to the due date of the group product. They were responsible for learning and summarizing the chemical mediators of inflammation based on material from the recommended text book. The teams were given the task of creating an 8.5" × 11 inch poster synthesis of this material. (Table 1 – CL 1, 2, 3, 4)

2. Students were asked to choose their own groups of four or five (Table 1 – CL 1, 4, 5). Students formed groups based on who they felt they could best work with and with whom they could easily arrange 'out-of-class' meeting times.

Table 1: Relationship of Task to the Five Elements of Cooperative Learning. This figure categorizes the five elements of cooperative learning in relation to this task in the undergraduate first year Pathology course.

Task	CL1	CL2	CL3	CL4	CL5
Group Product (poster)	X	X	X	X	
Group selection	X			X	X
Signing poster		X			
Group Process Reflection			X		X
Exam questions		X			

CL1. face-to-face interaction
CL 2. individual accountability
CL 3. group processing
CL 4. positive interdependence, and
CL 5. interpersonal skill development.

3. Each group member acknowledged ownership by signing their poster (Table 1 – CL 2).

4. On the designated "Poster Day,"

a) the posters were displayed in the hallway.

b) each group reflected on and evaluated another group's poster (product) using the criteria identified in the pre-designed form (Appendix 1).

c) At the end of the session, students completed an individual group process reflection (Appendix 2). (Table 1 – CL 3, 5)

5. An objective evaluation of their understanding was gauged at the midterm examination by specific content-related questions (Table 1 – CL 2).

Measurement tools

Two surveys were designed to measure the group product (Appendix 1) and the group process (Appendix 2).

• The group product was assessed with a subjective survey (Group Product Evaluation) based on modified 1 (yes) – 5 (no) Likert scale of effective synthesis, representation of relevant information, clear communication, and ease of understanding (Appendix 1).

• The group process was assessed with a subjective survey (Group Process Reflection) based on a modified 1 (yes) – 5 (no) Likert scale (of yes to no) of effective team time management, cooperative task execution, decision-making, team member contribution, and task strategy. This survey (Appendix 2) also invited students to share additional comments and observations including positive and negative feedback.

In addition, on the midterm examination, 9 of 67 multiple choice and 2 of 12 short answer questions specifically targeted the content synthesized on the poster.

Data analysis

The *Group Process Reflection* was analyzed in a summative semi-quantitative fashion related to the criterion-related questions. The students' comments and observations were subjected to qualitative assessment by thematic categorical analysis. The responses to the midterm examination questions were analyzed quantitatively based on a percentage scale. We recognize this study was limited in two ways: (a) feedback was self-reporting based on students' personal perceptions of their experience and (b) there was not a control group. However this is in keeping with cooperative learning philosophy where the study design is predominantly of a qualitative nature.

Results

Group product evaluation summary

This survey was completed by 24 groups. Each group evaluated one poster (group product) other than their own. Students' perceptions about the group posters were that the information was presented clearly in easy understandable formats. Their comments were strongly favorable for the four criteria on the questionnaire. The results are graphically displayed in Figure 1.

- (Q1) Ninety-six percent of the posters (group product) were judged to have the information synthesized effectively.

- (Q2) Ninety-one percent of the posters were judged to have relevant information represented.

- (Q3) Ninety-six percent of the posters were judged to have the information is communicated clearly.

- (Q4) Ninety-six percent of the posters were judged to be easy to understand.

Group process reflection summary

Quantitative assessment

Individual students' perceptions about the functioning of their groups were strongly favorable (levels 1 and 2 on this survey) for the five criteria on the questionnaire. The results are graphically displayed in Figure 2.

(Q1) Ninety-six percent of the students (61 + 20 of 84 - level 1 + level 2) agreed that their team managed time effectively.

(Q2) Ninety-five percent of the students (68 + 12 of 84) agreed that they approached the task in a collaborative and cooperative way.

(Q3) Ninety percent of the students (53 + 23 of 84) agreed that they used appropriate and effective decision making strategies.

(Q4) One hundred percent (65 + 19 of 84) agreed that all team members contributed equally.

(Q5) Ninety-four percent of the students (65 + 19 of 84) agreed that the strategy they developed to approach the task was effective.

Qualitative Assessment

The comments offered by the students on the *Group process reflection* indicated a strong engagement and enthusiasm for the task in which they all participated willingly to the best of our knowledge. We categorized the comments in the following themes: group dynamics, learning, team management, and instructional design as listed in Appendix 3.

a) Group dynamics. Many students valued the opportunity to work with their peers in a non-threatening social atmosphere in which they had "fun." The students were surprised that they could have fun *and* learn.

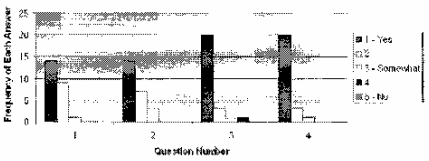

Figure 1
***Group Product Evaluation* Summary.** This is a graphic representation of the student group responses to the questions asked on the group product evaluation tool.

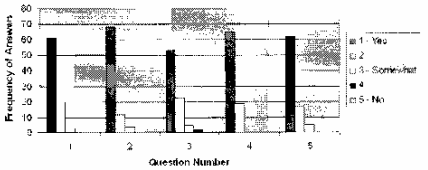

Figure 2
***Group Process Reflection* Summary.** This is a graphic representation of individual student responses to the questions asked on the group process reflection survey.

b) Learning. Most of the comments indicated that learning was facilitated by this activity due to (i) a variety of unique perspectives, (ii) creating a visual product that solidified concepts and served as an examination study tool, and (iii) discussion. However, seven of the twenty-four comments in this category indicated that this activity was not a productive use of time. One individual felt "I would have learned more if I could have been more creative."

c) Team management. Students used a variety of strategies to facilitate decision-making processes and time management to maintain their group's integrity.

d) Instructional design. Student comments indicated that this task was a "good change." They suggested that the instructions be clearer and that there is less restraint on the requirements for how the poster was constructed.

Midterm examination

Questions related to this content were analyzed in comparison to the remainder of the questions. Our underlying premise was that the use of CL in these content related questions would result in achieving at least a comparable correct answer response rate if not a better response rate than questions related to concepts where CL was not used as an instructional strategy.

Analysis was carried out with respect to the specifically targeted questions based on the material covered in the poster (9 out of 67). The correct response ranged from a low of 63 (70% of the students answered the question correctly) to a high of 83 (92% of the students answered the question correctly). This is in comparison of the correct response range of a low 10% to a high 100% on the questions based on the remainder of the examination. The two specifically targeted short-answer questions were correctly answered by 91% (82 correct responses) and 92% (83 correct responses) of the students respectively.

Discussion

Cooperative learning is defined by the five key elements of positive interdependence, individual accountability, face-to-face interaction, group processing, and teaching interpersonal skills. There are objectives in both the task and group process domains. Small group teaching, which is widely employed in many phases of undergraduate medical education, is not synonymous with cooperative learning. Though small group teaching may address some of these elements by people working together as a team, it is often not purposefully designed to meet all the elements of cooperative learning. Yet, we believe that there is room for both team *and* cooperative approaches to group work in undergraduate medical education.

The majority of the students in this Pathology course (90–100%) agreed that their group process skills of time management, task collaboration, decision-making, and task execution were effective for this cooperative learning exercise. Likewise, the majority of the student groups (91–96%) judged the group products to be relevant, effective, easy to understand, and clearly communicated. Many of the students felt that the poster also served as a quick study review tool for the midterm examination.

In our study, most of the comments related to *learning* indicated that this task was overall a beneficial learning experience. This is similar to Gibson's findings [15] that professional net-working and group assisted learning which occurred in the hospital training for junior doctors was perceived to be a beneficial learning experience.

Seven of the twenty-four student comments in the *learning* category indicated that this activity was not a productive use of their time. These student perceptions could perhaps be attributed to:

a) non alignment of the given task with their personal preferred learning styles;

b) a threat or challenge to their traditional view of medical education; and

c) the students are predominantly high achievers who have succeeded quite well academically independently. Hernandez [17] reported that students resisted participating in team learning activities. This perhaps explains some of the negative or incongruent student remarks encountered in our study.

Sobral's study [16] found that preparing students to work in cooperative groups was a meaningful and productive use of time. The students involved in Sobral's study [16], however, had *chosen* this elective knowing they would work in cooperative groups which perhaps, better aligned their individual preferred learning styles (a priori). They were, thus, already "on board" with this approach and therefore may have felt that this contributed to their self-directed learning with enhanced group skills and team work. In our study, this task, which encouraged student ownership of learning, was part of a *compulsory* course which had been taught in the traditional lecture format up until now. The students in this Pathology course were slowly being introduced to more active forms of learning [6,18] and for this task, selected their own groups to minimize the potential for conflicts of personality and scheduling [19].

Some students indicated that the instructions could be clearer and there could be less restraint on the require-

ments for how the poster was constructed. One individual wrote that "I would have learned more if I could have been more creative." This may mean that the task was too restrictive for this student or that the group in which this student worked did not value this "creative look" despite in-group negotiation.

Resistance to shifting from the traditional faculty-driven curriculum for instructors with student ownership including shifting the learning environment from an individualistic competitive system to a cooperative non-competitive atmosphere is exemplified by the following anecdote. The day after the assignment was discussed in class, one student arrived at the instructor's office with the poster completed. The student was keen, enthusiastic, bright, and proud of his accomplishment. The instructor recognized and wanted to reinforce this enthusiasm but realized that the student had not in fact completed the required objectives for this assignment. The student was re-directed to work with his chosen group to create a *group* product. In a traditional competitive environment, the student would perhaps have been rewarded for his initiative [17].

We believe that cooperative learning is feasible and can be incorporated as an instructional strategy within the limited contact hours in the delivery of the content-laden undergraduate medical curriculum. As an instructional tool/activity, this has the potential to create a fun, revitalized, and dynamic learning environment for students and instructors alike. The faculty's role in cooperative learning is to (a) specify objectives, (b) decide on group size and how groups will be formed, (c) explain the task, (d) monitor students' learning, (e) encourage increased team work skills, (f) evaluate student learning, and (g) help students process how their groups functioned. Setting up this task takes careful, thoughtful planning and, therefore, requires dedicated faculty time to ensure success with this educational intervention. Ravenscroft *et al* [20] and Imel [21] noted teachers' reluctance to employ team learning methods in classes. Thus, we may also have to overcome, not only student resistance [17] but also may encounter a similar reluctance of faculty to use cooperative learning activities in medical education. This is further compounded by the paucity of evidence-based documentation and published articles related to such educational interventions in this discipline, which may impede instructors from embracing the value and in the utilization of such alternative strategies in undergraduate medical education.

The cycle of learning begins with the student being taught and ends with the student being assessed on what was taught. All educational interventions need to be assessed to ensure that despite varied modalities of instructional design the student is able to perform well on all standard assessment tools with the underlying principle being 'do no harm'. In this context, it was important for the instructor to evaluate the students' performance on the content of this section of the course at the standard required midterm examination in comparison to the remaining course content. It is for this reason that the measurement tools in this predominantly qualitative study included not only the evaluation of the group process and group product as per cooperative learning philosophy but also the standard quantitative assessment of student performance at the midterm examination. Thus, this study has mixed research design methodology to satisfy all concerns of the curriculum committee and the institutional review board. It was heartwarming to note that the course content handled by cooperative learning did not have any deleterious effects in students' performance at the standard midterm examination scores. Though a successful outcome on any given task is virtually guaranteed with highly-driven, high-achieving medical students, it cannot be assumed that this same population has the skills to participate effectively in group situations. This makes it all the more important to structure learning activities that offer opportunities to practice and develop interpersonal skills that are critical for effective team function.

Conclusion

In conclusion therefore cooperative learning can be effective incorporated as a teaching strategy in the early years of undergraduate medical education. Co operative learning can address the desired outcomes in both content assimilation and development of interpersonal skills for medical students in their transition journey from being students to practicing physicians. This however, is a major shift from the traditionally held teaching and learning paradigms that is espoused in the medical education community. Such educational interventions may therefore pose challenges not only for students but faculty as well who have so far been socialized in a traditional reward system that acknowledges individual accomplishments in a competitive environment.

Appendix 1

Group Product Evaluation Survey Questionnaire

This is the form that students were given to evaluate the group product (the poster) using a modified Likert scale (see Additional File 1).

Appendix 2

Group Process Reflection Survey Questionnaire

This is the form that individual students were given to reflect on the group process. This form uses a modified Likert scale and invited written comments and feedback (see Additional File 2).

Appendix 3

Group Process Reflection *Summary – Qualitative Analysis-Emergent Categories*

The individual student responses to the group process reflection survey were listed and sorted according to main evolving themes of a) group dynamics, (b) learning, (c) team management, and (d) instructional design (see Additional File 3).

Competing interests

The author(s) declare that they have no competing interests.

Authors' contributions

Both authors have made substantial contributions to the conception/design of this study, acquisition, analysis and interpretation of data. Both authors have also have been involved in drafting the manuscript and revising it critically for intellectual content and have given final approval for publication of this version.

Additional material

Additional file 1

Group Product Evaluation Survey Questionnaire
Click here for file
[http://www.biomedcentral.com/content/supplementary/1477-7819-5-136-S1.pdf]

Additional file 2

Group Process Reflection Survey Questionnaire
Click here for file
[http://www.biomedcentral.com/content/supplementary/1477-7819-5-136-S2.pdf]

Additional file 3

Group Process Reflection *Summary – Qualitative Analysis-Emergent Categories*
Click here for file
[http://www.biomedcentral.com/content/supplementary/1477-7819-5-136-S3.pdf]

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We, the authors wish to thank all our learners, the students who participated in this instructional strategy.

References

1. Jamshidi H, Cook D: **Some thoughts on medical education in the twenty first century.** *Medical Teacher* 2003, **25:**229-237.
2. Salas E, Burke C, Bowers C, Wilson K: **Team training in the skies: Does crew resource management training work?** *Human Factors* 2001, **43:**641-674.
3. Leipzig R, Hyer K, Ek K, Wallenstein S, Vezina M, Fairchild S, Cassel C, Howe J: **Attitudes toward working on interdisciplinary healthcare teams: a comparison by discipline.** *Journal of the American Geriatrics Society* 2002, **50:**1141-1148.
4. Smith KA, Sheppard SD, Johnson DW, Johnson RT: **Pedagogies of engagement: Classroom-based practices.** *Journal of Engineering Education* 2005, **94:**87-102.
5. Harden R, Crosby J, Davis MH, Howie PW, Struthers AD: **Task-based learning: the answer to integration and problem-based learning in the clinical years.** *Medical Education* 2000, **34:**391-397.
6. Johnson DW, Johnson RT, Smith KA: *Active learning: Cooperation in the college classroom* Edina, MN: Interaction Book Company; 1998.
7. Mills S: **Cooperative learning at the post-secondary level.** In *Effective college teaching: Fresh insights and exemplary practice* Edited by: Ralph EG. New York: Nova Science Publishers; 2003:69-75.
8. Halpern D: *Thought and knowledge: An introduction to critical thinking* 4th edition. Mahwah, NJ: Lawrence Erlbaum Associates; 2003.
9. Rees C: **The problem with outcomes-based curricula in medical education: In sights from educational theory.** *Medical Education* 2004, **38:**593-598.
10. Cushner KH, McClelland A, Safford P: *Human Diversity in Education: An Integrative Approach* 4th edition. [http://highered.mcgraw-hill.com/sites/0072486694/student_view0/glossary.html]. McGraw Hill online learning centre Accessed April 3, 2007
11. **Cooperative learning** [http://en.wikipedia.org/wiki/Cooperative_learning]. Accessed April 3, 2007
12. Rassuli A, Manzer JP: **"Teach us to learn": Multivariate analysis of perception of success in team learning.** *Journal of Education for Business* 2005, **81:**21-28.
13. Crosby J, Hesketh E: **AMEE Guide No. 12: Small group learning.** *Medical Teacher* 2004, **26:**16-19.
14. Campione J, Shapiro A, Brown A: **Forms of transfer in a community of learners: Flexible learning and transfer.** In *Teaching for transfer: Fostering generalization in learning* Edited by: McKeough A, Lupart J, Marini A. Mahwah, NJ: Lawrence Erlbaum Associates; 1995:35-68.
15. Gibson DR, Campbell RM: **The role of cooperative learning in the training of junior hospital doctors: A study of pediatric senior house officers.** *Medical Teacher* 2000, **22:**297-301.
16. Sobral DT: **Productive small groups in medical studies: Training for cooperative learning.** *Medical Teacher* 1998, **20:**118-122.
17. Hernandez SA: **Team learning in a marketing principles course: Cooperative structures that facilitate active learning and higher level thinking.** *Journal of Marketing Education* 2002, **24:**73-85.
18. Kanthan R, Mills S: **Active Learning Strategies in Undergraduate Medical Education of Pathology: A Saskatoon Experience.** *Journal of International Association of Medical Science Educators (JIAMSE)* 2005, **15:**12-18.
19. Logan TF: **Cooperative learning: A view from the inside.** *Social Studies Teacher* 1986, **54:**123-126.
20. Ravenscroft SP, Buckless FA, McCombs GB, Zuckerman GJ: **Incentives in student team learning: An experiment in cooperative group learning.** *Issues in Accounting Education* 1995, **10:**97-109.
21. Imel S: **Using groups in adult learning: Theory and practice.** *The Journal of Continuing Education in the Health Professions* 1999, **19:**54-61.

APPENDIX A-3

SAXENA AND MILLS

Dr. Anurag Saxena and I collaborated on two main projects. Artifacts of those projects are included.

1) Award Winning Poster

From: Anurag Saxena <anurag.saxena@usask.ca>
To: Sheryl Mills <spiritsong7@yahoo.ca>
Sent: Friday, December 30, 2005 12:09:26 PM
Subject: Fwd: Royal College Annual Conference

From: "Gervais, Louise" <lgervais@rcpsc.edu>
Date: December 14, 2005 12:45:23 PM GMT-06:00
To: rhatala@mac.com, saxena@sask.usask.ca, 9mc1@qlink.queensu.ca
Subject: Royal College Annual Conference

I just wanted you to note that your names have been posted on our website as winners of the Annual Conference paper/poster prizes. http://rcpsc.medical.org/meetings/2005/prizes_e.php

Louise

Louise Gervais, CMP
Meetings Administrator
The Royal College of Physicians and Surgeons of Canada
774 Echo Drive
Ottawa ON K1S 5N8
613-730-6231/Fax: 613-730-8252
lgervais@rcpsc.edu
http://rcpsc.medical.org

http://rcpsc.medical.org/meetings/2005/prizes_e.php

Prizes for best presentations at the 2005 Annual Conference

During the 2005 Annual Conference, for the first time, the Annual Conference Committee offered prizes for the best oral presentation during the medical education/professional development paper session and the best overall poster presentation.

Of the fifty-nine poster presentations rated on the structure of the poster and the visual presentation, we are also pleased to announce the Annual Conference Best Poster Presentation:

0001 PROMOTING REFLECTIVE PRACTICE: TOOLS FOR INDIVIDUALIZING RESIDENT TRAINING: A. Saxena, S. Mills, Royal University Hospital, Educational Administration, University of Saskatchewan, Saskatoon

2) Saxena, A. & Mills, S. (pending publication). Crossword puzzles: Active learning in undergraduate Pathology and Medical Education. *Archives of Pathology and Laboratory Medicine.*

CROSSWORD PUZZLES: ACTIVE LEARNING IN UNDERGRADUATE PATHOLOGY MEDICAL EDUCATION

SHORT TITLE:
Crossword as an active learning strategy

AUTHORS:
Anurag Saxena [1], Raenelle Poole [2], Sheryl Mills [3]

INSTITUTION:
Department of Pathology, College of Medicine [1]; Department of Educational Administration, College of Education [4]; Fourth year medical student, College of Medicine [2]; University of Saskatchewan

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Tel: 306-655-2157
Fax: 306-655-2223
Email: anurag.saxena@usask.ca

Date: 2008-07-29 11:44:15
Last Sent: 2008-07-29 11:44:15
Triggered By: Katie Giesen
BCC: Redacted
Subject: 2007-0697-EPR Decision Letter
Message:

Dear Dr. Saxena,
Your manuscript "CROSSWORD PUZZLES: ACTIVE LEARNING IN UNDERGRADUATE PATHOLOGY AND MEDICAL EDUCATION" has been provisionally accepted for publication in the Archives of Pathology & Laboratory Medicine. The reviewer(s) felt that the manuscript would be improved with minor modifications.

APPENDIX A-4

Mills

During my program of research, I had two books chapters published. Copies of those chapters are included here.

Senior Editors: Susan Boriotti and Donna Dennis
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CONTENTS

'hapter 6

COOPERATIVE LEARNING AT THE POST-SECONDARY LEVEL

Sheryl Mills
College of Education
University of Saskatchewan
Saskatoon, Saskatchewan, Canada

ABSTRACT

Cooperative learning is a time honored way to structure classes using the energy of the group to enhance student learning, to increase retention, to strengthen understanding, and to build a cohesive and collaborative classroom environment.

"Make your friends your teachers and mingle the pleasures of conversation with the advantages of instruction."Baltasar Gracian (1647)

* * * * *

Cooperative learning is an active teaching method that involves students in the learning process directly by having "students work in small groups to maximize each other's learning" (Stark & Lattuca, 1997). Working in small heterogeneous groups, students have two tasks: completing the assignment at

hand and maintaining the integrity of the group. There are five main elements in a cooperative learning experience:

- Positive interdependence
- Face-to-face interaction
- Individual accountability
- Social skills
- Group processing

As an instructor of second and third year university students, I have found cooperative learning groups to be a useful way to structure classes. I do not use cooperative learning groups exclusively but rather when there is an advantage or reason for employing this particular structure. Cooperative learning groups provide opportunities for:

- Discussion
- Problem solving
- Consensus building
- Creating enthusiasm
- Team building
- Power sharing
- Mutuality
- Building trust
- Developing collaboration

Cooperative Learning and Typical Classroom Groups Are Not the Same

1. In cooperative learning groups all members of the group share leadership roles; there is no single group leader.
2. A range of ability levels for various skills characterizes group members.
3. Success of one member is related to the success of all other group members.
4. The group is responsible for getting the job done and for maintaining the group; one is not sacrificed for the other.
5. The instructor is a facilitator and does not intervene in the groups unless requested to do so by group members.

6. There is a strong social skills component. Social skills are defined, discussed, observed, and processed.
7. Individual accountability is of critical importance. For instance, students may be required to: sign the completed group assignment in order to indicate their personal understanding of it; take an individual quiz; take a quiz for the entire group; or do a separate, individualized assignment as a follow-up to a project.

Cooperative learning is not a new method of instruction but it has not been as widely used at the college or university level as it has been in the K-12 system. Cooperative learning is neither competitive nor individualistic - two typical features of traditional instruction. In cooperative learning, students are required to interact, to share ideas, and to be responsible for one another's successes. These principles can translate into less direct-teaching time, new ways of grading student work, and increased student ownership of their learning process.

Cooperative Learning Because . . .

"Two are better than one, for if they fall, the one will lift up his fellow; but woe to him that is alone when he falleth, for he hath not another to help him up." (Ecclesiastes 4:10)

* * * * *

I use cooperative learning groups for a variety of reasons. I find that students better retain information when they have been working cooperatively. Cooperative learning brings a certain freshness to the class. It also brings the students closer together so that our discussions become richer. I often find that students who are uncomfortable sharing ideas in a large group are quite willing to do so in a small group. Cooperative learning "breaks the pace, gives students an opportunity to meet each other, and builds students' confidence in themselves as learners - all requisites of a successful classroom community" (Duffy & Jones, 1995).

Research tells us that students who learn cooperatively "tend to like each other, the teacher, and the subject more. They become more accepting of ethnic, class, gender, and ability differences . . . They engage in more critical thinking and achieve better integration and retention of subject content. They develop higher levels of self-esteem and achieve at a higher level" (Pratt, 1994).

Challenges

There are also some hurdles to cross in using cooperative learning. I have found that students, who have had more than their fair share of individualized and competitive structures throughout their education and extra-curricular experiences, are not always open to sharing their ideas in a traditionally competitive environment. If top grades are a scarce commodity it is difficult to convince students that working together is beneficial. In today's workplace, the ability to cooperate *and* compete is a valuable skill to possess.

Instructors may initially find it difficult to make time for cooperative learning, especially if they have been comfortable with the existing structure of their courses. I have found that the time spent on cooperative learning produces dividends over the duration of the term. Once the students are confident with their ability to work in groups and once they are accustomed to making the make the transition to groups, the time taken to implement cooperative learning groups inevitably decreases.

Another concern among some educators relates to the assigning of student grades in cooperative learning situations. In a pure sense all students would receive the same make for any assignment they complete in a group setting. My experience has shown that this position does present difficulties if the groups are mandated. In my classes I provide students with the choice of working in a group to complete an assignment, with the understanding that the entire group will get the same mark. In an alternate format, one grade can be given for a group project with the students of the group parceling out the marks to each participant as they feel is appropriate.

I have also used cooperative groups for writing exams. I found it interesting to note that the grades for the group exams were more homogeneous that the usual ranges, and that the energy in the classroom seemed higher than was observed for a regular exam setting. Students reported that they learn more from this structure than they did in their regular exam format.

I have successfully used two different formats for group exams. In one format all of the students in the class must agree to this structure. Then they choose their own groups of no more than five students per group, and each group works on the questions in a manner on which they cooperatively decide. Within the time limit, each group finally submits only one paper for grading. All students in each group must sign the exam booklet submitted by their group indicating that they agree with and understand the answers given.

An alternate format for a cooperative-learning exam has both a group portion and an individual portion. Students work in groups of up to five for the first part

of the exam, and submit that portion within the given time period. Subsequently, they complete the second part of the exam individually. Students receive this second part of the exam after the first part has been submitted by each group.

In both of these scenarios I permit students who may not choose the group options to work individually, with the understanding that others are working in groups of their choice. Over the years I have observed that certain students have chosen to work independently and I have always respected this decision.

For these group exams, I have found that preplanning is crucial in order for me to arrange the most suitable facility available. Too, I have discovered that it is critical to prepare exam items that lend themselves to a group response, and that it is important for students to be able to self-select their groups. I have learned that this approach cannot easily be implemented on a spur-of-the-moment decision. Careful preparation, organization, and implementation are mandatory.

Cooperative Learning in Action

I have used cooperative learning groups in a number of ways over the years: some simple -- requiring little time to set-up, and some more elaborate. Three types that have proven productive are described below.

Think-pair-share. Students are given a topic or question to consider individually, and then they are asked to discuss their personal response with a partner. Sometimes these "paired ideas" are then shared in the larger group.

Jigsaw. Each student has a piece of unique information for which they are responsible for learning well enough to teach to others. The information packages can either be compiled by the instructor or by the students. Students then meet in groups to teach one another their individually-learned information. This activity can be used for processing large amounts of information in a way other than by lecture. The instructor is thus available to work with individuals or small groups who might need more assistance.

10 - 2. This simple method involves interspersing discussion with lecture - 10 minutes of lecture with 2 minutes of discussion on the topic being addressed. I have found that the short discussion segments helps to lock key concepts into place, and that students experience a break from the rigors of note-taking and listening from afar.

Setting-up for Success

Based on my experience, and that of several of my colleagues, I offer the following seven ideas to aid instructors in structuring cooperative learning experiences.

1. Students must see the relevance of using cooperative groups to learn the material. If there is no reason to use a group then one could not justify its implementation.

Explaining the reasons for using a group makes it more relevant for the class. Students may be required to share limited resources, share information, or complete a part of an assignment.

In one particular class I handed out a sheet of data to each student. They were to respond to some specific questions in groups. People simply processed the information individually; and the groups did not actually function until I took away all but one paper in each group. At that point the members were forced to depend on the person with the "scarce resource" and discussion ensued immediately.

2. Groups seem to function optimally with approximately 2-5 members. In larger groups some students tend to fade quietly into the background allowing others to do the work.

3. Students can find teacher-made groups effective. I typically use methods that randomly group students - drawing names, matching colored cards, using playing cards, matching pieces of a puzzle or incorporating other methods to arrange members that are quick and easy.

On the other hand, in the case of long-term assignments, in which groups are required to work outside of class, I find that students work better when they choose their own partners. Yet, for in-class tasks, the random groups work well.

4. Assistance should be provided if necessary, but enough time should be given for groups to puzzle through on their own before the instructor offers help. For instance, I will assist a group when all group-members request help.

5. Having groups check with each other concerning processes and progress should encourage inter-group cooperation.

6. The instructor needs to circulate and monitor progress as the groups are working.

7. It is important that the instructor provides closure by having groups summarize and share major points in a de-briefing time with the whole group.

Have you ever noticed the effects of a snowstorm on a community - everyone seems to help the stuck car or shovel the sidewalks for others without being asked? The camaraderie that emerges is involved in sharing in a common event or

concern. Cooperative learning has the potential to bring out those same feelings -- but hopefully without the natural disaster! Instructors must ensure that the reasons for working together are clear to all participants - that the shared pursuit of positive interdependence is present.

In Summary

Cooperative learning has the potential to bring your classroom to life with minimal changes in structure. By combining rigorous academic elements with the benefits of discussion learning, instructors will promote retention and understanding in an atmosphere of collegiality and cooperation.

References

Duffy, D., & Jones, J. (1995). *Teaching within the rhythms of the semester.* San Francisco, CA: Jossey-Bass Publishers.

Millis, B., & Cottell, P.Jr. (1998). *Cooperative learning for higher education faculty.* Phoenix, AZ: Oryz Press.

Pratt, D. (1994). *Curriculum planning: A handbook for professionals.* Orlando, FL: Harcourt Brace College Publishers.

Stark, J., & Lattuca, L. (1997). *Shaping the college curriculum.* Needham Heights, MA: Allyn & Bacon

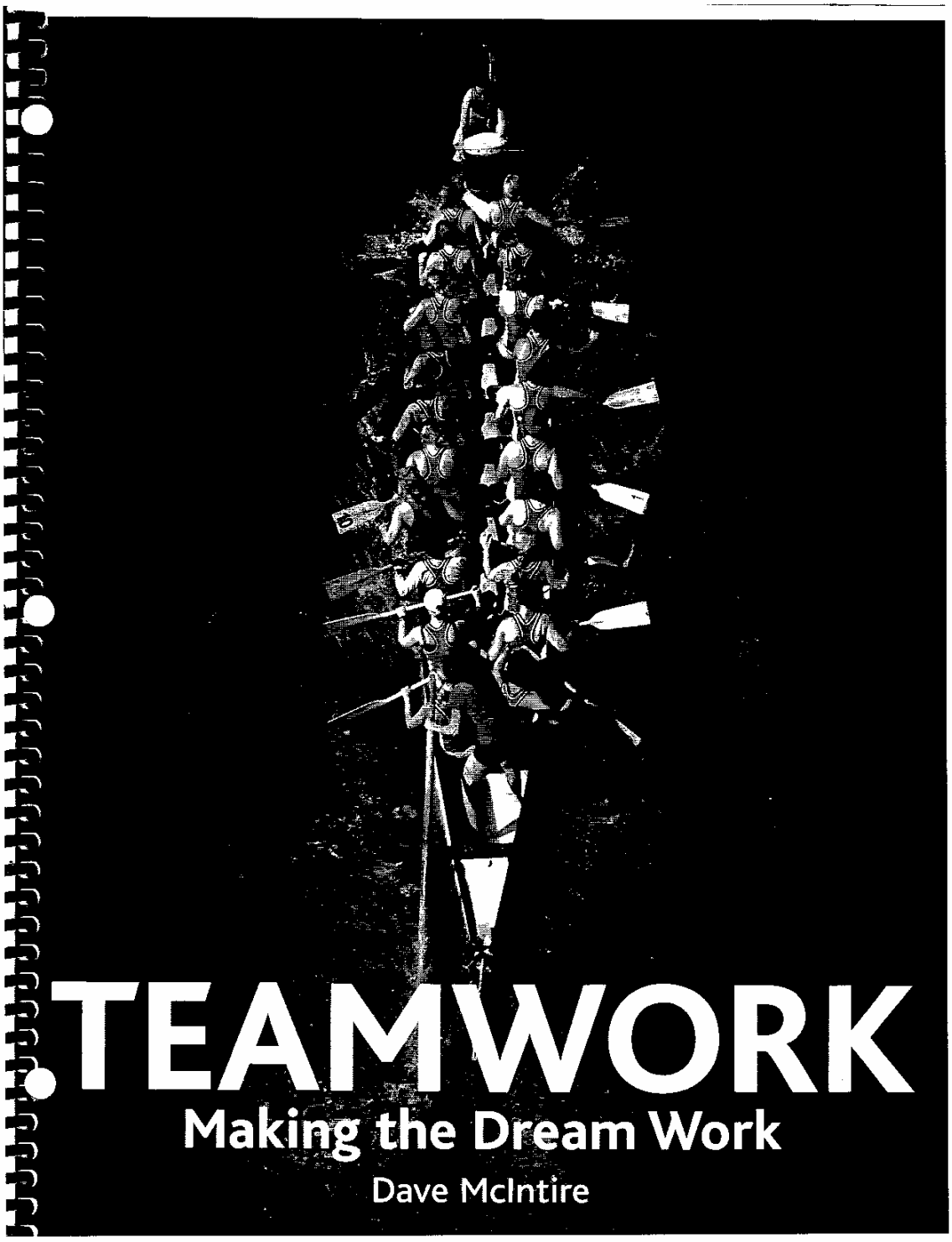
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Table of Contents

CHAPTER FOUR

Losers Swear Sooner: What it Takes to be a Consistently Winning Team

by Sheryl Mills

Summary: What does it take to be a successful team? Readers will learn about the Cs and Rs required for the toolbox of any successful team. Using a slightly different approach, this author will empower readers to incorporate those Cs and Rs into their own teams.

Introduction

Organizations – teams of any kind – have a purpose or common goal. The purpose of hockey is elegant, clear, and straightforward – score more goals on the other guys than they score on you. Some teams do this better and more consistently than other teams. In this way, consistently winning teams offer a model – a metaphor — of cooperation and team that can be applied to organizations.

I have a background in organizational behaviour, team, cooperative learning, and leadership. I was shadowing a leadership development course, preparing a class on cooperative learning, and reading *Go Team! Take Your Team to the Next Level* (Blanchard, Randolph & Grazier, 2005) when I started watching men's recreational hockey – "the beer leagues." The teams aren't coached. There are two nineteen-minute periods with about two minutes in between periods, and the goalies don't change ends. The game is exciting, fast and skilled, and is played by guys who love to play. Play moves quickly from end to end; things change in an instant. The fast play, excitement, and speed of the live games combined with few distractions kept me interested long enough to notice emerging patterns that weren't evident to me when I watched hockey on television or attended semi-professional or youth games. I noticed that characteristics of consistently winning teams were similar to those of successful "next level teams" and cooperative groups.

I apologize up front for any over-generalizations, naïve interpretations of play, or simplistic notions of such an elegant, skilled game. I don't have a hockey background; I've never played the game (I can barely skate!) and as I already mentioned, I have only recently started watching hockey, but this past season I watched dozens of games. I am always interested in what makes for an effective team or organization, and I was hooked into men's recreational hockey. I was curious about the outcomes of the

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games but the electronic game sheet rarely conveyed the excitement or the context of the penalties or how a goal was actually scored so I went to see more and more games live. It became clear that teams that frequently lost shared some qualities, but it was the common qualities of consistently winning teams that intrigued me.

This chapter is a report similar to that of a repeat traveler to a foreign country – not a first-time tourist but also not the viewpoint of a native. There is an advantage in this; when we look at something new we see things that a person immersed in the culture with habituated responses may not see anymore or takes for granted. Travelers see things differently than natives and see more clearly than an overwhelmed tourist. In this chapter, I invite you to travel into the world of men's "rec" hockey to see that the attitudes and skills that make for consistently winning hockey teams can be attended to and developed in organizations.

"...winning teams... shared five common attitudes – camaraderie, chemistry, control, confidence and commitment."

Attitudes and Skills

There are important elements which distinguish recreational hockey teams from other hockey teams and most organizations. Men's recreational hockey offers a pure sense of team in that, although refereed, it is not coached. It is a small "organization" with a time-bounded clearly defined goal. It isn't played for spectators or fans; "rec" hockey is for the guys who choose to play. It is clearly their game. Under bright lights the only sounds are skates on ice, the puck hitting a stick or the boards, the ref's whistle, laughter, swearing, and shouts of encouragement or disappointment. Often I was the only spectator in an arena with a capacity of 15, 000. Players have chosen to play the game and have perhaps also chosen the team they play on; motivation to play is intrinsic. They play because they enjoy the game, and they have already developed the skills needed to play — there is 100% engagement.

The consistently winning teams I watched shared five common attitudes — camaraderie, chemistry, control, confidence, and commitment. The technical skills that consistently winning teams had that seemed to give them the edge were that, generally speaking, they paid attention to rebounds, they used all available resources in a variety of ways, and they were relaxed and patiently set up plays. Losing teams did not demonstrate the same level of development in all of these areas, as did the consistently winning teams. The lessons from men's recreational hockey offer a tool for evaluating our organizational "teams." As you read, you may want to consider an organization that you are part of or a team you play on and identify areas that, by improving, your organization could win even more consistently.

Attitudes — The 5 Cs

When people have chosen to be on a team of any kind, they are more committed from the beginning. If they enjoy what they are doing, they do better. If they have the skills – and resources available to them to work towards the organization's objectives, they are more likely to succeed. These are fundamental to success.

No teams turned up without equipment. They had the tools they needed to work towards their goal. The players individually had the skills necessary to play the game. They had most likely grown up in a culture that supported and encouraged hockey. They probably played hockey, attended clinics, watched hockey on TV, developed their skills with adequate coaching and support, and most likely they had experienced at least some degree of success. Now,

most importantly, these players were not playing for any extrinsic reward. It appeared that they played because they liked playing and wanted to play! The game was rewarding enough. In men's "rec" hockey, the players were playing for their own enjoyment and recreation, and this is common to all teams in a recreational league. This may be a naïve observation but it is a critical one because this foundation of intrinsic motivation and choice combined with fun guarantees, win or lose, the players have a good time doing something they love. They weren't playing for money, glory, their fans, recognition or because they had to – they simply wanted to!

This is not always the case for individuals who hire on with an organization. In an organization it is important to consider if the people on the "team" have (a) chosen to play this game over all other games they could have chosen, (b) if they enjoy the game and their part in it, and (c) if that they feel competent and have developed the skills needed to play the game effectively.

Employee motivations may be broader than simply loving what they do; their work may be a means to an end for them. They also may not have the necessary skills already developed to feel competent or confident in their ability to perform the tasks for which they are responsible. They may not feel they have the choice about working or necessarily love what they do. They have a "boss." Current figures on employee engagement in the workplace are appallingly low so these are important distinctions to take into account, not so much because it lessens the comparison, but rather that it points out attitudes and differences regarding work and play, and how developing and fostering these attitudes in an organization may contribute to success.

Camaraderie. Consistently winning teams looked like they were having fun. They seemed to enjoy both the game and playing together. It didn't seem to matter if they were winning or losing, they still played like they were having fun – joking around, taking time to talk to each other, gathering at the bench between periods, congratulating each other when a goal was scored and checking in with the goalie when a goal got past him. They stepped it up a notch if they were behind. Although I heard players say that it didn't matter if they won or lost, they seemed to want to win; they had a visible desire to do well. The teams that consistently won played hard and seemed to have fun. There was laughing and joking... and apparently beer. Losing teams didn't seem to be having much fun. In your organization do you share a sense of camaraderie? Do you trust and appreciate each other? Do you have fun together?

Chemistry. Consistently winning teams seemed to value all contributions and worked together. They seemed to trust each other to be there and to be able to play their parts in the game effectively. Consistently winning teams moved as a unit. A player who went forward to take advantage of an opening was covered for seamlessly. They seemed to know each other's strengths and styles of play. They seemed to sense where they all were at any given time and made use of that. One consistently winning team had four players on the roster with the same last name while another had a core of three players who had played together for a number of years. In this season they had added several new players, and then lost two of the three core players. Their effectiveness changed with the loss of these players. Their winning streak wobbled and they began to lose or tie games against teams that previously had not given them any trouble. The chemistry they had wasn't as strong. Consider if there is

It didn't seem to matter if they were winning or losing, they still played like they were having fun...

chemistry among the members of your team. Do you work well together? Does everyone have a sense of where they fit and that they are valued for their role on the team? Do you trust each other to play your parts effectively, and do you cover for each other to take advantage of strengths and opportunities? Are there plans in place if key players leave the organization?

Control. Emotions and attitudes are contagious. Consistently winning teams controlled negative emotions quickly – or didn't show them – and encouraged one another positively. They had more emotional control; they didn't "lose" it as often. And if something went off the rails, consistently winning teams regrouped much more quickly while losing teams started swearing sooner. Once the swearing started they had lost their composure, their focus, and eventually the game. Oh, the winning teams swore too, but the tone was different. There was anger and disgust in the losers' tones and not so much in the winners'.

Consistently winning teams looked like they knew they were going to win – even when they were losing!

Losers swore more and swore sooner. They dwelt on problems, passes that didn't make it, "bad" calls, turnovers, "unfair" penalties — losers were busy blaming. Winning teams were already onto another play before the losers had finished swearing and regrouped. Teams lost the game the moment they start acting like losers. Winning teams didn't lose it when things went bad. They kept going, regaining composure quickly – if they ever really lost it — regardless of the "reffing" or the other team.

In an organizational sense, there is value in emotional control and regrouping quickly; emotional and social intelligences can be reinforced and acknowledged. Members of the team can be encouraged to have the crucial conversations and "keep what happens on the ice on the ice."

Confidence. Consistently winning teams consistently played like winners. They kept clearly focused on scoring more goals than did their opposition and to a lesser extent, preventing goals from being scored on them; they trusted the goalie to do his job. Losing teams seemed to have a more defensive manner from the get go. They protected their goalie and they seldom played four up and one back while consistently winning teams often had one man back and four on the goal. Consistently winning teams looked like they knew they were going to win – even when they were losing! They kept going. They were on their game, never wavering from going for goals. It seemed that once the leading team slipped into a defensive mode they were on the way to losing. Occasionally it appeared that a team had decided they had lost this game, and then they really started playing like losers – hanging back, and playing more defensively and conservatively. The teams that won consistently played like winners consistently whether the score was in their favor or not. And more often than not, the score switched around and they came out on top even if they had been down; they may have been down but they were never done!

In your organization, do you carry yourselves like winners? Do you walk tall and confidently in your organization? Are people proud to be part of this group and talk positively about your organization? Do you know you are winners and play like winners even when it looks like you are losing?

Commitment. Consistently winning teams seemed to have a core of players who were consistently there. They were experienced players who seemed to know what they were doing and were committed to the common clear goal. The team seemed

important to them. It felt differently when a particular player went for the goal than when the team scored. On consistently winning teams individual egos appeared to be committed to the team. Organizationally, all "players" (a) understand the mission and purpose of the organization, (b) they agree with it, (c) they work toward it, and (d) they are committed to doing their part even when that might mean setting individual egos aside. Are you all committed to your team? Do you all have the desire to do well?

Skills – The 3 Rs

Consistently winning teams had technical skills and strategies that were often lacking on teams that frequently lost; they attended to rebounds, maximized available resources, and patiently set up plays.

Rebounds. Consistently winning teams were diligent about rebounds; they got them but didn't give many away. Often two forwards would go in as a pair with the third close behind to follow-up on rebounds. Sometimes a defenseman would be behind him. They got the shot, the rebound, and the next one. Rebounds are huge – rebounds when taking a shot and the rebounds from a shot on their own goal. They controlled these much better than teams that lost more frequently. Consistently winning teams also "rebounded" more quickly from being scored on – when the puck was dropped at center ice, they went for a goal quickly and definitively. In your organization do you consistently go for the rebounds? If there are setbacks, do you rebound and move in again going for the second and third chances? Do you back each other up and do people move into position to score more frequently?

Resources. Consistently winning teams appeared to have more resources – although they didn't have any more technically than the teams they played. They used the boards like additional players. They used their feet and hands, and their sticks appeared to have more reach. They controlled play from the sides playing monkey-in-the-middle with the defending team. They often used more of the ice and were seldom cornered. Consistently winning teams extended their reach collectively and individually while teams that over-extended had falls and mistakes. Consistently winning teams didn't always control the play but they interrupted the flow of the other team enough to change the energy by disturbing the opposition in their play-making, and they took good penalties to prevent possible goals. In your organization do you identify and use all the available resources in innovative ways? Do people extend their reach while being careful to not over-extend? Do you know when to take good penalties – small possible disadvantages over certain large ones? Do players know their strengths and use them to advantage?

Relaxed. Consistently winning teams set things up and were patient. This was a critical difference between winning and losing teams. They developed plays from deep in their own end as they moved down the ice to set up for a goal whereas losing teams more often had one guy zoom in, shoot, and then lose the rebound – and control of the game. Losers chased the puck individually and went everywhere! They played individually with little team effort. Consistently winning teams seemed to be there – wherever there happened to be. They made plays and created opportunities rather than simply taking advantage of opportunities when they came along as teams that frequently lost did. Consistently winning teams played their game and they controlled the flow and speed of the play.

Consistently winning teams set things up and were patient.

They could change things in an instant and often did by changing the pace of the game to take control. Patience and calm cannot be stressed enough. The paradox is that winning teams appeared relaxed while they patiently set up plays and created opportunities yet they did this with dynamic vitality. Organizationally, that rushing forward and being frantic may cause errors and lost opportunities. Watch, set things up, and be patient about making the "shot."

Conclusion

Throughout the season I watched the top four teams play in both divisions A and B. Earlier I indicated that there is an advantage to being new to a situation. We have to look more carefully to make sense of something new and we construct a framework to organize new knowledge. As I struggled to understand hockey I started linking it to what I already knew about effective teams, leadership, organizational effectiveness, and cooperation as part of making meaning of this foreign experience. After I had watched lots of games, I noticed that I wasn't seeing the elements that made up the game as clearly as I was now seeing the game. I made a transition and had become involved totally in the game. I had lost the eyes of a new-comer with a different perspective. I was now more familiar with the teams in the league and their styles of play, and noticed when things shifted for a team from their usual style. As I watched more and more games I needed to make those links to my knowledge in other areas less and less; I had become at least somewhat knowledgeable about hockey, but the notes I made initially remained invaluable in creating a metaphor for organizational success.

...it is possible to make changes on a team and to incorporate the elements of a winning team even in the last minutes of play...

I was surprised and pushed once again into a sense-making situation during the league play-offs. Things changed and teams were playing differently than I had seen them play during the regular season. Entire games were played with the intensity of the last three minutes of the final period or the last two minutes in the first period. The pressure was on. It was now a matter of playing hard or being out. Teams that hadn't had an overly impressive season applied themselves in ways I hadn't seen previously. Of course I hadn't watched every game every team played but I had watched every team in both divisions play at least once, and I had watched the consistently winning teams play many times. A couple of teams that hadn't been in the top four in the season now turned up early with a full bench. They encouraged each other more and the moment a player started to lose control, his teammates called him in. In short, they started to play like winners. They demonstrated that it is possible to make changes on a team and to incorporate the elements of a winning team even in the last minutes of play and the last games of a season. The difference is that consistently winning teams do that consistently!

APPENDIX B

The Teaching and Learning Foundational Document

I served on the Steering Committee for the development of this resource from 2004 until its publication in 2008.

UNIVERSITY OF SASKATCHEWAN

The Teaching and Learning Foundational Document

As of October 6, 2008

I. Executive Summary

Teaching and learning are central to what universities do as institutions of higher learning. At the University of Saskatchewan, this critical mission has been taken seriously. From its inception in 1907, the University of Saskatchewan has assisted thousands of students to meet their educational and vocational goals by offering one of the broadest arrays of degree level programs in Canada. Underlying the breadth of program offerings is the talent, expertise, skill and devotion of the University's faculty and instructional staff who help students learn, who impart knowledge to students on a daily basis, who advance the frontiers of knowledge through their research, scholarly and artistic activities and who engage students and society by sharing their expertise beyond the University itself. Over the years, the University of Saskatchewan has built a strong reputation for high quality undergraduate and graduate teaching programs. Our students perform exceptionally well on national examinations, national and international competitions, and are in high demand in both graduate and professional programs.

Much of the teaching and learning direction has been left up to individual faculty and instructional staff, to departments, to colleges, and to academic support units. This decentralized approach has served us extraordinarily well over the past decades, but needs to be examined in light of approaches at other universities and student learning needs and goals in the 21st century.

This Foundational Document has sparked a University-wide conversation about the motivations, guiding principles, issues, and initiatives which should be undertaken to support the University's critical teaching and learning mission. It is anticipated to lead to an action plan and the development of new initiatives that will demonstrate our University's continued commitment to teaching and learning in the 21st century. Originally conceptualized as part of the Enrolment Plan (approved by University Council in 2003), this Foundational Document has moved beyond student numbers and composition to address the critical and complex questions of teaching and learning in the 21st century. This Foundational Document must be read in conjunction with others which have gone before it – the Aboriginal, International, Research, Outreach and Engagement Foundational Documents and the Enrolment plan. Together, these documents provide a comprehensive overview of the factors affecting the University's teaching and learning environment.

This Foundational Document begins by describing the perspectives of students and faculty on teaching and learning at the University of Saskatchewan. Student perspectives are informed by responses to major surveys between 2000 and 2007, focus groups conducted between January and May 2006, and the Student Retention Study completed in 2006. Faculty perspectives are provided through discussions sponsored by the Provost and held between January and June 2006. Both perspectives suggest alternative approaches to teaching and learning but also point towards common ground. Informed by trends and exemplary practices in teaching and learning in higher education in other jurisdictions, these perspectives provide opportunities to make the University of Saskatchewan teaching and learning experience an even more exceptional one through the deliberate planning and implementation of strategies to support common goals.

At the heart of the Integrated Planning Initiative is the development of key planning documents – Foundational Documents – which signal institutional direction and commitment on key planning dimensions. In the case of our teaching and learning efforts, we need to consider whether what we are currently doing is appropriate for 21st century learners. This Foundational Document suggests a number of critical questions which should be addressed through the University's planning process and which should be used as the basis to inform college, department and administrative unit plans. Some of the critical questions are:

- To what extent should the University rely on or increase its commitment to e-learning?
- What practical, hands on, learning opportunities should be provided to students?
- What should be the primary characteristics of a University of Saskatchewan educational experience?
- What educational values does the University of Saskatchewan aspire to and how should its educational programs demonstrate them?
- What new strategies and approaches should be adopted to support these goals?
- What organizational structures, both leadership and support, need to be created to support teaching and learning and promote and celebrate new approaches and innovations and excellence in teaching?

These are questions which go beyond one planning cycle or even one decade. They will all require concerted institutional effort to be adequately addressed.

This Foundational Document has been drafted as the *Second Integrated Plan* was developed and approved by University Council and the Board of Governors (May 2008). Its impact is already significant: the *Second Integrated Plan* identifies 'improve the undergraduate and graduate experience, both inside and outside the classroom' as one of three priorities for the University's second planning cycle. Institutional attention will therefore be focused on achieving the commitments in the *Second Integrated Plan*[1] over the next four years. It is expected that initiatives which will support the broad general goals of this Foundational Document will be presented for approval by the various University governing bodies as well as implementation in the colleges and academic support units in the next four years and beyond.

Foundational Documents are, however, intended to guide institutional activity for a decade or longer. This Foundational Document is no exception. The ideas presented in the pages which follow represent a substantial challenge to the University. While immediate action can be anticipated as initiatives supporting the commitments in the *Second Integrated Plan* are developed, continued dialogue and action on many of the issues identified at the end of this text will need to be engaged over the coming decade and beyond.

This Foundational Document asserts that the University of Saskatchewan is doing a good job of teaching and learning, but that improvements can and should be made. It opens a critical dialogue within the academic community about the nature of the teaching and learning experience for the next decade and beyond since decisions today will have lasting implications for future students, faculty

[1] The six commitments associated with the priority area 'improve the undergraduate and graduate experience, both inside and outside the classroom' are: the teacher-learner experience; innovation in programs (including engagement of students in research and discovery, engagement of students in community-based learning in Saskatchewan and Canada, and engagement of students in international and global learning); a diverse body of students; retention strategies and initiatives; Aboriginal engagement; and the campus environment for students.

and instructional staff. We must ask ourselves whether our efforts meet today's standards, and more importantly whether they will stand the test of time.

II. Preface: Student and Faculty Voices

"I feel that the University of Saskatchewan has provided me with an excellent educational experience. The earning environment is very productive and I feel that my degree has a high standing in the 'real world'." *Senior year student (NSSE)*[2]

"This is my very first term of University and it is everything that I thought it would be." *First year student (NSSE)*

"So far I have had mostly very positive experiences at university. The transition from high school has been made relatively easy by helpful teachers and an effectively implemented system for the University to communicate with students (i.e. PAWS)." *First year student (NSSE)*

"Overall I'm vaguely disappointed with my university experience right now. The residence life isn't all it's cracked up to be, students are rude for the most part and obsessed with drinking and just getting through with a degree so they'll make a huge salary at the end…the class sizes are huge, making each class very impersonal unless I make specific efforts to make it not so. It's an expensive review of high school for the first year, and I don't agree with that. Yes, there are programs and support offered, but they're hidden away, and often the times available conflict with my schedule." *First year student (NSSE)*

"A positive educational experience is being with a professor who is passionate about their topic rather than just 'teaching'. If the instructor finds something exciting about the topic, the student will too." *Student focus group participant*

"Having a doctorate and knowing how to teach are not synonymous … having a PhD means you are a good student." *Student focus group participant*

"Good teaching is not rewarded. It is assumed and expected whereas research activity is rewarded from the moment a faculty member arrives, through [grants], physical space, supports, and publication. Further, research recognition is cumulative not episodic." *Faculty member, Spring 2006 discussion meeting on teaching and learning*

"A teacher needs students. However, to learn, a student does not necessarily need a teacher. This suggests that students are more important to teachers than are teachers to students. Teaching is about students who learn, not teachers who perform." *University of Saskatchewan Master Teacher Award recipient*

"The message needs to be not 'teaching versus research', one against the other, but 'teaching and research'. Both are part of a connected, whole, process. The divide is a false one. Teaching is not separate from research. Teaching has to be informed by scholarly inquiry. Teaching and research should both be valued as equal. The University must take it for granted that faculty will do research, but they are not expert teachers. They need help to teach." *University of Saskatchewan Master Teacher Award recipient*

"Teaching isn't filling a bucket, it's lighting a fire." *University of Saskatchewan Master Teacher Award recipient* (original references to W.B Yeats and Mark Twain, among others)

[2] National Survey of Student Engagement (NSSE) 2006.

III. Introduction

Since its inception in 1907, the University of Saskatchewan has assisted thousands of students to meet their educational and vocational goals by offering one of the broadest arrays of degree level programs in Canada. Underlying the breadth of program offerings is the talent, expertise, skill, and devotion of the University's faculty and instructional staff who help students learn, who impart knowledge to students on a daily basis, who advance the frontiers of knowledge through their research, scholarly and artistic activities, and who engage students and society by sharing their expertise beyond the University itself. As the Systematic Program Review (SPR) process revealed, our faculty and instructional staff demonstrate an astonishing degree of commitment to teaching, to students, to academic excellence, and to sustained delivery of high quality programs. In turn, our students perform exceptionally well on national examinations, national and international competitions, and are in high demand in both graduate and professional programs. Our graduate students are similarly highly valued and well trained, many going on to accomplished academic, professional, educational or other careers in a wide variety of fields in Canada and internationally.

This is not surprising. Teaching and learning is central to what universities do as institutions of higher learning and, at the University of Saskatchewan, we have taken this critical mission seriously. The University has built for itself a strong and well-deserved reputation for high quality undergraduate and graduate teaching programs. Yet, much of the teaching and learning direction is left up to individual faculty and instructional staff, to departments, to colleges, and to service units. This generalized approach has served us extraordinarily well over the past decades, but there are reasons we should not be complacent.

Some pressures for change are external. In an era of increased competition among universities for the best faculty and students, where differentiation among universities boils down to innovative programs and experiences for students, where population shifts and demographics are becoming increasingly important, and where reliance on technology is increasing and access to information is virtual, the situation has changed. There is a need to engage the University of Saskatchewan community in a dialogue about the teaching and learning experience that the University should strive to provide. We need to be informed about leading edge practices at other universities and we need to adjust our practices and approaches to meet the needs of 21st century learners, primarily from Saskatchewan, but increasingly from other parts of Canada and from other countries.

Arguably the most important reason for us to renew our commitment to teaching and learning is internal. Simply put, we *care* about excellence in instruction and in student outcomes. We want our students to be exceptionally well-prepared for their roles as citizens and members of society. There is always room for improvement in this regard. It may indeed be that the world today, precisely because of its complexities and uncertainties, requires more from universities of the things they have always promised: the skills and knowledge for people to be productive, capable, and self-conscious citizens. Derek Bok expressed the dilemma particularly well in his 2006 book *Our Underachieving Colleges*[3]: while students are largely satisfied with the education they are getting (a finding that applies to the University of Saskatchewan, as we shall see), their education nevertheless falls short of the loftiest goals of ensuring students are equipped for critical thinking, reasoning on ethical and moral issues, quantitative reasoning, knowledge of other languages and cultures, and so on. From a Canadian perspective, George Fallis has written in 2007[4] that one of the highest functions of a university is to

[3] Derek Bok (2006), *Our Underachieving Colleges*. New Jersey: Princeton University Press.
[4] George Fallis (2007), *Multiversities, Ideas, and Democracy*. Toronto: University of Toronto Press.

nurture and sustain democratic life. Are we satisfied that the learning environment at the University of Saskatchewan does everything it can and should do towards such overarching educational goals?

This is not to suggest or imply that teaching and learning discussions are not taking place at the University of Saskatchewan nor that our teaching methods and approaches are outdated. Within departments and colleges discussions about the nature of the curriculum and the pedagogy that should be employed are connected to program revisions or accreditation visits. Efforts to integrate new technologies and approaches into teaching and learning continue to grow, both for on-campus teaching and for distance learning. Faculty and instructional staff have accessed programs and services sponsored by the University Learning Centre (ULC) or the Gwenna Moss Centre for Teaching Effectiveness (GMTCE) or programs sponsored by individual colleges (such as Medicine and Engineering) specifically to improve their individual teaching skills or to learn about a particular technique or approach. Student and Enrolment Services Division (SESD) has responded to recent studies and surveys that have highlighted areas of necessary adjustment such as student retention and student health and wellness. The Provost has recently created an Undergraduate Forum aimed at bringing together administrators and students to ensure that urgent and pressing matters are identified and addressed in a timely fashion.

What is strikingly absent in all of these efforts is the existence of an institutional policy or perspective on the nature of the educational experience we want all of our students to have had when they leave the University of Saskatchewan and the types of programs and supports that we need to put into place to ensure that they are successful in the 21st century world. One part of the equation is the continual necessity, more urgent now than ever before, for effective innovation within our broad range of programs – to ensure that each of them is not only up to date but also captures the imagination of faculty and students, generates excitement, and taps into the realities and needs of external communities and their needs. Innovations in courses, programs, and curricula come from faculty working alone or, increasingly, in teams and groups. We must strive towards an institutional culture that encourages, supports, and assists this kind of innovation.

But learning is not only about program design; indeed, the perspectives collected in the preparation of this Foundational Document suggest that our University's greatest potential for improvement may lie outside of formal learning activities. While we recognize that the student experience does not begin and end at the doorway to the classroom, laboratory, or studio, based on the design of most curricular offerings an observer might conclude that the student experience at the University of Saskatchewan is primarily a classroom exchange of information. The social, cultural, and working lives of students represent a critical part of the student experience and can be described at 'the hidden curriculum'; they are not included or designed in programs and curriculum offerings in a systematic way. And, while the University cannot, and should not, assume responsibility for all aspects of a student's life, it would be folly to presume that learning in a university setting is confined to those formal occasions in which it is scheduled to take place. It is for this reason that universities all over the world are concerned with providing programming that extends well beyond academic coursework and intentionally creating a living and learning atmosphere that fosters both academic and personal growth. This orientation implies a concern for the physical and psychological well-being of students, as well as for their academic preparation and success.

Additionally, facilitating student success involves addressing the complexities of student life in the 21st century. While students bring a full range of skills and interests to the university, they also bring personal challenges and needs which must be addressed. Students with children require appropriate day care facilities. Aboriginal students need to know that their cultures and intellectual traditions are respected. International students benefit from assistance in their adaptation to Canadian lifestyles – and to Saskatchewan winters. Students with disabilities or medical conditions require specialized

assistance. For many students, both undergraduate and graduate, financial support is a requirement for attending university. And so the list continues, through campus recreation programs and chaplaincy services, residence spaces, varied dietary requirements, and inter-university athletics. The University must adapt to ensure that the students it enrolls have every opportunity to succeed.

This Foundational Document is informed by two separate discussions in 2006, with students and faculty, as well as by the results of a series of recent University-level surveys and studies on the aspects of the student experience (2000-2007). Both reveal a strong desire by students, faculty and instructional staff to move an already good educational experience to an exceptional one.

Students want the University to give them a voice in their educational experience, to support their diverse needs and learning styles, to provide them with stimulating and engaging programs and activities, to prepare them for the challenges of the modern world. Students want their educational experience to move beyond the classroom towards all of the environments where they learn, providing them with the support they need to succeed and thrive, and ensuring that they receive a high standard of teaching. They want the University to acknowledge different learning styles and respond to greater diversity within the student population. More importantly, students want the University to focus more directly on their teaching and learning experience, to value the solutions they put forward, and to involve them in their learning more directly.

Faculty and instructional staff want the University to acknowledge their teaching efforts more visibly and to provide them with the support they need to provide exceptional educational programs to undergraduate and graduate students alike. They yearn for a clear articulation of the value and importance of teaching within the context of University of Saskatchewan. They want their efforts to be supported and recognized.

This Foundational Document is also informed by exemplary practices in higher education world-wide. What we have learned is that the University needs to be more student-focused, more learning-centered. By proposing an unapologetically student-focused approach to teaching and learning, this Foundational Document opens a critical dialogue within the University community about the nature and quality of the student experience in the early 21st century. Because the University of Saskatchewan has a strong base on which to build, it identifies some areas for further development as well as some areas in which critical attention is required. By making adjustments and more intentionally directing our efforts, we can ensure that existing and new initiatives address common goals and priorities. Recent initiatives have spurred some early successes. We need to acknowledge progress, but we need to accelerate momentum to adapt to emerging challenges and to inform our current practices with new developments in other jurisdictions.

Teaching and learning is at the heart of what we do as a university. Engaging in University-wide discussion about our goals and direction in this fundamental mission is long overdue and critical to our future success.

IV. Perspectives on Teaching and Learning at the University of Saskatchewan

If attention at the University of Saskatchewan has been focused on either one of teaching or learning, it has most often been focused on teaching. Over the past several years, the University has re-written its standards for promotion and tenure, University Council has approved principles and policies on teaching evaluation, and most recently, a University-approved instrument for the evaluation of teaching (Student Evaluation of Educational Quality, SEEQ). Programs and services at the Gwenna

Moss Centre provided guidance and advice on the development of teaching portfolios and peer mentors for faculty to improve their teaching. While this focus on teaching does not mean that student learning has been ignored, our tendency has been to address classroom issues as teaching related, rather than to emphasize learning outcomes or expectations of students upon completion of specific courses, or degree programs, or varied learning environments or experiences, or even learning communities.

Early on in the development of this Foundational Document, it was clear that attention needed to shift to the needs of students, to have a better understanding of the learning requirements of 21st century students, and specifically those of students at the University of Saskatchewan rather than relying on the primarily USA-based literature to identify areas for development. This conclusion resulted in a year-long study of student opinions, including the integration of the findings of several University-wide studies and surveys conducted between 2000 and 2007 (and ongoing).

Attention was also centered on faculty and other instructional staff perceptions of the teaching and learning environment at the University of Saskatchewan and specifically on barriers which need to be addressed. It is clear from conversations undertaken in the February to May 2006 period that an action plan is urgently needed to address barriers and perceptions.

There is however common ground and opportunity to move forward. Given the substantial information currently available about student views of their educational experience, we begin with the views of our students on the teaching and learning environment.

Student Perspectives on Teaching and Learning at the University of Saskatchewan.
The University of Saskatchewan has historically been heavily reliant on Saskatchewan students to fill its programs. This trend continues today as almost 90% of our students claim this province as their place of origin.[5] Still, our student body is changing. Marked differences are observable in the proportion of female to male students overall and in some colleges. There is a slowly increasing international component at the undergraduate level. Almost half of our students report working an average of 15 – 20 hours per week and even though they recognize that working has at least 'some' negative impact on their academic performance, almost 38% are doing so to support their studies. While the proportion of Saskatchewan residents attending is still strong, it is less strong than it was even a decade earlier. Some of these changes are direct effects of the Enrolment Plan (approved in 2003) which signaled the need to shift our reliance on Saskatchewan students towards out of province and international students given the demographic realities facing the province. The drop off in the number of grade 12 graduates in Saskatchewan anticipated has already begun and is expected to accelerate over the next decade. Other changes are due to the increasingly competitive nature of higher education, including the scholarship enticements for students to study at other universities, but also the much more aggressive recruitment environment, both nationally and internationally. The University has been accustomed to sitting back and waiting for students to arrive at its doors; that can no longer be the case. Over the next decade, we expect to see a major shift from an enrolment environment characterized by a steady supply of students, a local/provincial focus, traditional programs and delivery methods, and minimal competition towards an increasingly competitive recruitment environment, a decreasing supply of students, a stronger national/international focus, a need for stronger and more innovative programs and delivery methods, and an intensified and more competitive higher education sector.

[5] The latest information available is 2004/05 data. In that year, 89% of the undergraduate student body were Saskatchewan residents.

At the graduate level, there are changes as well. There are more graduate students of all types to begin with. For example, PhD enrolments have increased by 86% since 2001. The move towards Professional Masters programs has accelerated with more students taking these programs during the Spring/Summer session than ever before. There are fewer students taking post-graduate diploma programs given decisions to de-emphasize these programs, a direct result of SPR recommendations from external examiners. The University continues to be a destination of choice in Canada for international students studying in advanced degrees and the diversity in country of origin for international students is substantial.

Through its participation in a series of surveys, focus groups, and the recent Retention Study, the University has available to it current and powerful information about the opinions of students, both undergraduate and graduate, in its programs. While students are clearly satisfied with their educational experience, improvements can be made which would dramatically affect the nature of their experience. Let us begin with an overview of what the surveys, focus groups, and retention study tell us about the student experience at the University of Saskatchewan.

Surveys and Survey Results. The University has participated in six major University-wide surveys over the period 2000 – 2007: the *Canadian University Survey Consortium* (CUSC), 2001 – 2007; the *National Survey of Student Engagement* (NSSE), 2006; the *Student Satisfaction Inventory* (SSI), 2003; the *Saskatchewan Advanced Education and Employment: Graduate Outcomes of 2004/05 Class* (with other post-secondary institutions), 2007; the *Student Outcomes Survey* (2000); and the *Canadian Graduate and Professional Student Survey* (GPSS), 2007.[6] While the results of these surveys have been or are in the process of being distributed to the campus community using a variety of methods, (e.g. presentations as part of the Provost's Teaching and Learning Series in Fall 2006, to Deans' Council, to student groups, or to selected Council committees; postings on the Integrated Planning or other websites; articles in *On Campus News*), no one office has, until recently, analyzed them for common themes or trends which might assist the University to better address the emerging and priority needs of its undergraduate students.[7]

While the purposes of the survey instruments conducted on undergraduate student populations vary, results converge. There is, for instance, a remarkable consensus among undergraduate (first year, undergraduate, graduating)[8] students about the overall quality of the education they experience at the University of Saskatchewan. Graduating students report being slightly more satisfied (89-91%) than undergraduate students (86-88%) based on CUSC responses over four survey years, while first year and senior students reported overall satisfaction as 'good' based on the NSSE (2006) results. Compared to results at peer universities, University of Saskatchewan students are more satisfied with the overall quality of education they experience here with 86-91% of students rating it as 'good' or 'excellent' compared to 82-87% in the Canadian peer group (CUSC) which included universities offering both undergraduate and graduate degrees and professional schools. Students at the University of Saskatchewan are at least as satisfied as first year and senior students when

[6] For a summary of each survey's purpose, an indication of sample size and number of respondents, please see Attachment One.

[7] This Foundational Document can only provide a high-level overview of general trends identified by the analysis completed to date. More information on the results of all of the surveys can be viewed at http://www.usask.ca/vpacademic/integrated-planning/planning_office/surveys.php.

[8] The CUSC surveys undergraduate students, but focuses on three different 'views' of undergraduates: first year, undergraduate (in any year of their program except first year) and graduating (students who are in their final year of studies and ready to graduate with an undergraduate degree).

compared to students in the Canadian peer group (NSSE) which includes universities in the medical/doctoral category. They tended however to rate their satisfaction with the overall quality of the education they received as 'excellent' less often (21-23%) than students in their Canadian peer group (25-30%) and in the North American peer group (32-35%).[9]

The University of Saskatchewan has participated in CUSC since 2001 and has seven years of data to draw on. Based on this data, we know that our students are generally satisfied with the quality of teaching they receive, although typically first year and graduating students are more satisfied (80-89% and 87-90% respectively) than undergraduate students in first-level bachelor's programs (79%). When compared to responses of students at Canadian peer universities, the experience of our students is slightly more positive: 83-85% of first year, 84% of graduating, and 79-80% of undergraduate students at other universities report that they are satisfied with the quality of teaching they received (CUSC, 2001-2007). These results were recently confirmed by the province-wide *Graduate Outcomes of 2004/05 Class* post-graduate survey conducted in partnership with the Department of Advanced Education and Employment. In that survey, 92% of students reported being either satisfied (61%) or very satisfied (31%) with the quality of teaching at the University of Saskatchewan. Further, 89% of our students were satisfied with program content and 84% would choose the same program again if given the opportunity to do so.

Based on the survey data, it is important to state categorically that students at the University of Saskatchewan are, in general, satisfied with their overall educational experience and with the quality of teaching they receive. Undergraduate students indicate that they have evaluated courses in most programs (84-86%, CUSC), that professors are knowledgeable in their field of study (97% CUSC and top strength in SSI), and that some instructors had a major positive influence on their academic career (83-85%, CUSC). Faculty are meeting student expectations to be available after class and during office hours to discuss grades and assignments (SSI and NSSE), two-thirds (67%) of students agree that grading is consistent and fair (CUSC), and a majority of graduating students (76%) indicate that their professors provided useful feedback on their academic performance (CUSC). These strong results reflect the effort and dedication that faculty bring to the teaching environment at the University.

As can be expected, the surveys are designed to illuminate many aspects of a student's overall university experience, including some critical areas which receive less attention at the University of Saskatchewan but which are nonetheless crucial to understanding how students experience the University. These include:

- ***Practical and 'real world' knowledge.*** CUSC data reveals that a growing number of undergraduate students who are graduating (less than 1 and up to 27%)[10] have been enrolled in an experiential learning program that provides credit for work experience (e.g.

[9] This includes all North American institutions that participated in NSSE in 2006.

[10] This reflects the results of two surveys, three years apart. In the first survey, graduating undergraduate students indicated that they had very limited exposure to experiential learning programs (less than 1% of students surveyed that year indicated they had such an experience). In the second survey three years later that number had improved to 27% of the graduating student body who indicated that they had the opportunity to enroll in a work experience or co-op ed program. Given the number of such programs offered by the University, this might not be as negative a comment as it might first appear.

co-op or internship programs).[11] Over 91% of the students surveyed on this dimension in 2006 were satisfied with their experience, a 10% higher satisfaction level than students in Canadian peer universities. NSSE indicates that senior students are more engaged in enriching educational experiences[12] than first year students. This conclusion is confirmed by CUSC data which indicates that only 2 – 9% of undergraduate students at the University of Saskatchewan reported being enrolled in a co-op (work experience) program when compared to 7 – 18% at Canadian peer universities. Further, out of a list of self-directed academic activities, graduating students cited co-op programs/internships/other practical experiences most often as contributing to their personal growth and development. Overall, University of Saskatchewan students indicated that they were less engaged in enriching educational experiences than their Canadian and North American peer groups. In all groups, senior students were more engaged than first year students.[13]

- ***Respect for students as individuals.*** Despite overall satisfaction with the University, only 55-69% of first year students, 52-56% of undergraduate students, and 46-53% of graduating students indicated that they were satisfied with the University's concern for them as individuals (CUSC). 63-74% of first year and undergraduate students agree that professors treat them as individuals, not just as numbers (CUSC). This is comparable to the peer sample (66-71%) but slightly less than the national sample (72-77%). Responses to the SSI (2003) also reported low satisfaction with faculty concern for students.

- ***Academic advising.*** Academic advising was ranked third or fourth by undergraduate students in a list of priorities for improvement to facilities/services over two CUSC surveys (2002, 2005). Students placed a higher importance on and were more satisfied with their academic advisor being knowledgeable about requirements in their major and being approachable (SSI). Undergraduate and graduating students are less likely to be satisfied with academic advising (74-75% and 75%, CUSC; 60% for senior students, NSSE). First year students are the most satisfied with the overall quality of the academic advising they obtain (84% CUSC and 68% NSSE). Despite the high satisfaction of first year students, only 56-60% report at least 'some success' in getting academic advice (CUSC).

- ***Academic development.*** The majority of undergraduate (86%) and graduating (90-93%) students agree that their learning experiences have been intellectually stimulating (CUSC). Graduating and senior students rated academic skills, communication skills, analytical/learning skills, work and knowledge life skills, and personal and relationship

[11] The significant growth may in part be a response to a change in how the question was stated on the survey instrument between 2003 and 2006.

[12] Enriching educational experiences as described in NSSE include: co-curricular activities, practicum, internship, field experiences, co-op experiences, clinical assignments, community service or volunteer work, foreign language coursework or study abroad, culminating senior experiences such as capstone courses, senior projects or thesis, or comprehensive examinations.

[13] These findings are consistent with an earlier study sponsored and conducted by the University which identified significant student interest in closing the gap between the classroom and the workplace. In the *Student Outcomes Survey* (June 2000), our 1994 graduates clearly indicated that we can improve the quality of the educational experience at the University of Saskatchewan most profoundly by providing work experience or "practical knowledge." Approximately 65 percent of respondents focused on this kind of investment. No other suggestion, including smaller classes, increased funding, and better instructors, had the support of more than 15 percent of respondents in that study.

life skills higher in contributing to their growth and development than did first year students (CUSC and NSSE). Less than half of first year and senior students reported that the University placed 'quite a bit' of emphasis on providing the support that they needed to succeed academically (NSSE).

- ***Student life.*** A higher proportion of University of Saskatchewan students feel part of this University or have had at least 'some success' in feeling as if they belonged here than do students at peer institutions. First year and undergraduate students are also more satisfied (83-98% and 87-89% respectively) with University-based social activities than their peers (CUSC). Graduating students reported higher than average satisfaction with the opportunity to develop lasting friendships (89-90% vs 80-83% at peer institutions, CUSC). Over 80% of first year students had at least 'some success' in making new friends with other students. First year and senior students reported that the University of Saskatchewan placed between 'very little' and 'some' emphasis on helping students to cope with non-academic responsibilities such as work, family, etc (NSSE 2006).

- ***Career Development and Advice:*** The single most important reason for first year students to attend university was to prepare for a specific job or career or to get a good job (CUSC). Over half to two-thirds (56 – 65%) of first year students reported 'some success' in finding useful information and resources on careers and occupations and on average 57% of undergraduate and 59% of graduating students had decided on a career field or specific occupation (CUSC) when they were surveyed.

- ***Location as a Factor in Student Decision-Making:*** **In a world of increasing mobility, the University of Saskatchewan's dependence on students from Saskatoon and surrounding areas represents an increasing risk.** The single most important reason for first year students to attend the University of Saskatchewan was that they wanted to live close to home, whereas for peer institutions it was either the quality of the academic programs offered or the availability of a specific career-related program (CUSC). In 2004/05, 83% of the undergraduate student body was of Saskatchewan origin. Of this group, nearly half (49%) came from a community of less than 10,000 and another 15% came from a community between 10,000 to 49,999 in population.

- ***Communication to students/student interactions with the University.*** While 73-77% of first year students have had 'some success' in finding help with questions or problems, relationships with administrative personnel/offices scored lower (64% first year, 61% senior students) in terms of being helpful, considerate, and flexible. Half of undergraduate students (49-52%) and 63% of graduating students feel like they are caught in bureaucratic red tape or are getting the 'run around'. Readily available channels for expressing student complaints scored low with students indicating that this was not meeting their expectations (SSI).

Because some of the above findings diverge significantly from the 'overall assessment' and overall student satisfaction with their University of Saskatchewan experience, they are especially important for us as we discuss the teaching and learning environment. They provide important clues about what we can do better. While University of Saskatchewan students are, in general, very satisfied with their educational experiences compared with students at Canadian peer universities, the data presented by the various survey instruments point towards some important aspects of student academic life that can, and should, be improved, by being more intentional about our program and learning supports or by other

efforts aimed at ensuring that more of our students have as wide a variety of experiences as possible while they are with us rather than localized, if excellent, options.

Before moving to a discussion of focus groups and other studies, it is important to note that the surveys conducted at the University-level are not the only surveys administered in any given academic year. The recent discussion paper, *A Framework for Assessment: Beyond Systematic Program Review*[14], provides a lengthy list of known surveys that have been administered by central university administrative offices as well as some surveys sponsored by some colleges or units. The University-level surveys cannot supplant or address all of the needs of the colleges or units, but it is critical that wherever possible available information is used to provide context for college or unit level activity (and vice-versa).

Finally, the University-level surveys described in this section are focused almost exclusively on undergraduate students. The Deans of Graduate Colleges in Canada have recently administered the *Canadian Graduate and Professional Student Survey* (GPSS) to students. The Graduate Students Association and the Dean of Graduate Studies and Research are in discussions about the development of a specific survey instrument for assessing the graduate student experience on our campus in conjunction with the Integrated Planning Office (IPO).[15] Such a survey, in addition to the exit questionnaire already offered by the College of Graduate Studies and Research, could provide important information about the nature of the graduate student experience on campus. Given the lack of specific information about graduate students at this time, it is important to keep in mind that the analysis above may or may not reflect the experience of graduate students who come to the University of Saskatchewan.

Student Focus Groups, Spring 2006. In an effort to gain a better understanding of the specific challenges facing University of Saskatchewan students, a series of focus groups was sponsored by Provost Atkinson between February and May 2006 to support the development of this Foundational Document. Targeted e-mails were sent to various student bodies (i.e. graduate students, students in non-direct entry colleges, first year undergraduate students in direct entry colleges, upper year undergraduate students in direct entry colleges, Aboriginal students, students in off campus/distance education courses, and alumni) asking for their interest and participation in a focus group. Interest in the project was very strong, with close to 300 responses, but due to scheduling constraints, not everyone who was interested was able to participate. In total, 18 focus groups were conducted with 117 participants. While an effort was made to include representatives from every college, no students from the College of Dentistry participated.

Students were very forthcoming with their opinions on the teaching and learning environment at the University of Saskatchewan and especially grateful for an opportunity to express their opinion. They were enthusiastic, articulate, and insightful. While opinions varied, there was a great deal of commonality in responses. There were also some insights specific to certain student populations which are germane to the teaching and learning environment.

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[14] Following an extensive consultation and drafting process, this paper has been discussed by University Council in June 2008 and presented for approval. A decision is anticipated in October 2008.

[15] This survey is currently under development and will likely be administered between during the 2008/09 academic year as a partnership between the GSA, the College of Graduate Studies and Research and the Integrated Planning Office.

Learning Environments. Students defined a learning environment as broadly as possible. For most students, learning was not confined to the classroom but occurred in a broad spectrum of venues and formats. Because students defined learning as involving primarily growth and transformation, student learning was perceived to be stimulated by a wide variety of environments including interactions with other students, with faculty and other instructional staff, with practical and hands-on experiences (such as laboratories, field work, experiential learning opportunities, etc), many of which could be described as 'the hidden curriculum' or the 'curriculum within a curriculum'.

Learning experiences. Students placed a high value on, and cited most often, the opportunity for hands-on/practical learning experiences included in their degree programs. They enjoyed laboratories, practica, and instructors who applied real world examples to class materials. Their interest in this type of education was not limited to 'work experience' or formalized 'experiential learning' opportunities. Even a simple demonstration of how theoretical concepts translated into practical application was viewed as valuable. One example cited was in a class when a specimen animal was brought into the classroom so that students could observe its characteristics more directly. Unique learning experiences such as this were more likely to be remembered by students longer than the specific course material. Students wanted more such 'hands on' experiences of all types. They were disappointed with the limited opportunities available to them particularly because they saw such opportunities as very meaningful for their personal and intellectual growth and development.

Learning Outcomes. Students identified five positive skills gained at the University: communication skills, time management skills, research skills, project management skills, and people/inter-personal skills. They also described four negative skills learned: procrastination, thinking "politically" about how to get along with instructors and other students, excessive malleability (adapting to whatever is currently needed), and regurgitation. Again, these skills could be described as the 'hidden curriculum' not necessarily intended but nevertheless conveyed by practice.

Evaluation of teaching/learning. Students viewed the current teaching evaluation system as generally ineffective. They commented that the process is not transparent and that students see little or no change as a result of their participation. Students were also generally dissatisfied with the examination process. They felt that success on most exams requires memorization rather than learning the material, that exams are designed to attain a certain class average rather than test for knowledge, and that exams are not written for all types of learning styles because the format is not varied enough.

Technology in teaching and learning. Student views of the role and impact of technology in the classroom were mixed. For students in distance education courses, the quality of the technology played a large role in their experience and satisfaction with the learning process. This is not a surprising finding particularly given the heavy reliance of distance education on electronic media of all types. Students reported that their experience with technology in the classroom varied greatly and no discernable pattern among the focus groups was identified. However, there was agreement that technology, such as power-point presentation software, clickers, etc. is an asset only if used properly. If it is not, it is more of a hindrance to their learning than an asset.

Respect/cultural sensitivity. Students indicated that one of the key contributors to a negative learning experience is when faculty and staff do not treat them with respect.

While the experiences of Aboriginal students were similar to those of the general student population, they expressed strong views about perceptions by other students, faculty, and staff about their legitimacy within the University. Many described negative stereotypes and negative experiences, inside and outside of the classroom, based on their race.

Personal Development and Preparation. One key challenge for students was related to skills. Managing time (not falling behind and building a schedule that works) and learning to study for University were frequently mentioned by students as important skills needed to succeed. Students in professional colleges spoke of stress and heavy workloads more often than any other student population.

Ideal Instructor. All students, regardless of the make-up of the focus group, agreed that the ideal instructor exhibited several qualities. The ideal instructor was viewed as approachable. They made student learning a priority. They were knowledgeable about their discipline or field of study and enthusiastic in sharing their knowledge and expertise with students. Students agreed that the ideal instructor had a passion for teaching and enjoyed teaching. Students commented on the impact of the instructor on the learning experience and described this is as the most significant aspect in either a positive or negative experience. While students were generally satisfied with the quality of instruction, the impact a poor instructor could have on the learning experience was marked and negative experiences coloured the student's program of study.

When asked to identify the top three things that the University could do to improve the overall student experience, focus group participants identified 'training and equipping professors as teachers', 'addressing and diminishing student isolation', and 'ensuring that students have ways to provide feedback to the institution', most frequently. First-year students commented about the difficult transition from high school to University and the need for greater support to ensure that this is not 'such a rough transition'.

The overall message from the focus groups was that the University needs to focus on 'improving teaching'. While students were generally satisfied with the quality of instructors at the University of Saskatchewan, when asked what the number one thing to change would be, the answer was invariably 'improve teaching'. Stated differently, this paradox highlights the recognition by students that teaching makes a difference to their educational experience.

Student Retention Study (2006). The *First Integrated Plan* called for a study of retention issues aimed at determining the major obstacles to students continuing their academic studies at the University of Saskatchewan with the intention that the findings would inform institutional practices, policies, and programs at both the college and university levels. Conducted by Student and Enrolment Services Division (SESD) and the Integrated Planning Office (IPO), the study focused on: 1) the patterns of retention, attrition, and degree completion of cohorts of students; and 2) the underlying reasons for student attrition at the University of Saskatchewan and approaches that promote retention.[16] To determine rates and patterns of student retention, attrition and degree completion, cohorts of entering students from 1993 to 2002 were analyzed using data stored in the Student Information System (SIS). To discover underlying reasons for student retention and attrition and approaches that promote retention, three student-based studies were conducted (a survey of voluntary leavers, interviews with students who persist after an academic failure, and focus groups with continuing students). Analysis was restricted to the direct entry colleges (Agriculture and

[16] To obtain the full study or to learn more about the study, please go to <website?>.

Bioresources, Arts and Science, Commerce, Engineering and Kinesiology) to ensure that comparisons were meaningful.[17]

Defining retention as either degree completion, continued registration in the cohort college, or transfer from one college to another, the study revealed that overall retention rates between 1993 and 2002 have hovered at 67%. One quarter of the students who leave the University of Saskatchewan without completing a degree are required to discontinue for academic reasons. The vast majority (three out of four) of students who leave the University without completing a degree leave voluntarily, i.e., they are academically eligible to continue but do not.

Defining attrition as either discontinued registration after a completed term of study, withdrawn registration in the midst of a term of study, or required to discontinue by the institution, the study found that attrition is greatest during or after the first year of study with almost 30% of first year students leaving the University of Saskatchewan. While other studies may very well define retention and attrition outcomes differently than this study, it would seem, based on both Canadian and American research, that University of Saskatchewan attrition rates are higher than others. First year attrition also represents 85% of total attrition in the study, a proportion greater than in other universities where it is typical for first year attrition to account for half of total attrition. Following second year, an additional 7% attrition occurs. Beyond second year, changes in attrition rates are small with a trend of modest gains of returning students of less than 1% per year.

Retention rates were studied based on four student origins or admissions patterns: 1) students coming directly from high school, 2) students who took a break of one or more years after high school, 3) students who transferred from another post-secondary institution with 18+ credit units, and 4) students who transferred within the University of Saskatchewan from one college to another. Not surprisingly perhaps, students who have been successful in one University of Saskatchewan college are more likely to succeed in another college. Students who enter directly from high school are more likely to succeed than students who enter from another post secondary institution. Interestingly, students who take a break after high school before entering the University of Saskatchewan have the lowest retention rates of all four origins or admission patterns. Differences in retention rates between the direct-entry colleges are notable. Commerce consistently retained over 80% of its students, Agriculture and Bioresources, Engineering and Kinesiology fluctuated around the mid to high 70%s, and Arts and Science retained approximately 60% of its students.

Over two-thirds of the student body enters through the College of Arts and Science annually. Perhaps not surprisingly, given its size, purpose as an entry point for some students to access professional programs offered at the University of Saskatchewan or elsewhere, or admission average, the College of Arts and Science had the highest level of attrition and the lowest level of degree completion of the direct-entry colleges studied. However, students who had previously been registered in the College of Arts and Science had the highest degree completion rate suggesting that they were well-prepared to succeed in other colleges as well as the importance of recruitment to the college as a key factor in institutional enrolment management. The College of Commerce had the lowest level of attrition and the highest level of degree completion.

[17] The only other University-level retention study undertaken was completed as part of the Program Audit Project in 1996. It reviewed retention and completion rates of both direct entry and non-direct entry colleges and demonstrated that attrition rates were higher for students in direct entry colleges.

At least half of the students in all colleges who obtain a degree do so within four years. Engineering is the exception with only 33% of students doing so in four years. Another 25 – 67% depending on degree program complete a degree by seven years after initial enrolment. Taking more time to complete a degree program may be in part due to the growth in part-time work among university students, but may also relate to course availability and selection based on the responses of voluntary leavers included as part of this study.

A telephone survey of *voluntary leavers* (students who either discontinued or withdrew from their studies before completing a degree in 2003, 2004 or 2005)[18] administered by Insightrix Research Services in March 2006 revealed that:

- The primary reasons for attending university were to prepare for a specific job or career (36.6%), to obtain a general education (24.5%) and to get a good job (18.9%); the primary reason for choosing the University of Saskatchewan was its proximity to family (76.1%).
- 31.9% felt unprepared for the workload of university, 29.8% were unprepared to balance their external demands (such as jobs, family, and other responsibilities) with their schoolwork, and 27.7% were unprepared for the financial costs. More than 20% also mentioned the learning environment and academic standards as areas in which they were unprepared. 29.2% felt prepared in all of these areas.
- 42.2% left the University of Saskatchewan because they wanted to transfer to another post-secondary institution, but only 25% said that this was in their original plan, suggesting that 75% of voluntary leavers came to this decision after or during their University of Saskatchewan experience. Of those who transferred to another institution, 54.5% said this decision was based on university factors such as course/program offerings, inability to enroll in desired area of study, and dissatisfaction with campus. The others (45.5%) transferred for personal reasons that did not relate to the University itself, such as a desire to relocate.
- Almost half (48%) of voluntary leavers surveyed had attended or were attending another post-secondary institution. The majority (67%) stayed in Saskatchewan and the majority (63%) left university-level education. One-third of the voluntary leavers identified subsequent attendance at SIAST, followed by the University of Regina (16%) and Saskatoon Business College (less than 1%). Universities in Alberta together totaled 6.1% of the responses regarding other post-secondary institutions.
- Over 80% reported that they had sought university help or advice prior to leaving from sources such as academic/college advising, consultations with professors, and career counseling.
- 21% of students transferring to another post-secondary institution said the University could have provided better assistance to them such as more support and more programs and classes. 30.5% of students who left because of academic difficulties said the University could have done more including more support and advice.

A group critical to the understanding of barriers to student learning and causes of academic-related attrition is *students who were required to discontinue because they did not meet program standards but who later returned to university and advanced in their program in good standing*. Interviews conducted with this group revealed that 'lack of a clear academic/career goal' and 'lack of commitment/dedication to studying in the first

[18] This represented a population of 2285 students; 339 chose to participate in the study (an overall participation rate of 14.8% resulting in a margin of error of 4.9% at 95% confidence).

year' were the primary reasons for initial failure. In turn, the majority of participants indicated that taking personal initiative to 'develop an academic/career plan', 'commit to getting a degree', and 'improve study habits' was imperative in helping them succeed. This group of students suggested pro-active, career-focused academic advising and enhanced engagement with professors as the most significant ways the University could improve the first year experience and promote student success. They recommended that academic advising be pre-emptive and even mandatory for all entering students, ongoing (advising sessions that begin early in the program and happen at regular intervals) and well-timed (before or directly after December exams). Some noted that a compulsory meeting with a college advisor at the first sign of academic trouble would be helpful. Further, they suggested that academic advising should be career-focused (especially those from the College of Arts and Science), acknowledging the need for both career and program advising and the huge gap between program and course advising and broader advising (such as career, personal, academic exploration and decision-making, goal-setting etc.)

Students in focus groups, described in an earlier part of this document, were asked a direct persistence-oriented question: 'what are the key challenges you have faced in your studies at the University of Saskatchewan?' These were:

- challenges involving professors, especially the effectiveness of teaching and lack of meaningful and timely feedback and appropriate forms of assessment (relevant assignments, exams that require more than memorization of material)
- adjustment from high school to university, especially in math and writing skills and to the higher academic standards of university education
- developing the skills for academic success (study skills, time and workload management)

For Aboriginal students, additional challenges included: feeling marginalized including a sense of 'not being welcome, not fitting in, and a gulf between Aboriginal focused services or programs and the mainstream'; financial difficulties such as budgeting and unanticipated costs for textbooks, food and services on campus; and balancing school with other responsibilities, such as child care.

The results of this comprehensive study have been shared with various groups over the past year. It will take time to address the issues and to see the impact of changes but it should be used as a benchmark by which to assess progress.

The above section provides a summary and an indication of the rich data that is available to us and when taken together (surveys, focus groups, retention study) presents powerful information about the teaching and learning environment at the University of Saskatchewan as experienced by its students. While it is skewed to undergraduate students,[19] the data points towards a number of ways to improve student learning and to increase the lasting impact of education on student lives.

It is important that the University of Saskatchewan, through its colleges and service units, acts on this data. We know students are attracted to programs in other jurisdictions that offer more creative approaches to delivery of course and program material or where innovative programs and supports are provided. Increasingly students are getting their information about higher education from the popular media. *Macleans* and the *Globe and Mail* both publish annual 'rankings' of the

[19] The results of a national graduate student outcomes survey will soon be published by the Integrated Planning Office in collaboration with the College of Graduate Studies and Research.

universities and students are engaged in the process.[20] True, these publications tend to accentuate small differences between and among institutions, but, over time, there is a strong impact/impression left on students from both the province and elsewhere on the nature and quality of the degrees that are provided/obtained based on how others perceive their selected institution of higher learning. Further, while Saskatchewan students have typically selected the University of Saskatchewan over universities in other provinces, we cannot be complacent. The demographics in Saskatchewan over the next decade are daunting. To remain successful and retain many of the degree programs we currently have, the University needs to recruit students from other jurisdictions and retain Saskatchewan students interested in university education at a time when the economic boom in Saskatchewan and Alberta is a major attraction for many highly qualified and potential students and the number of students graduating from the Saskatchewan K-12 system is substantially reduced.

The surveys, focus groups and retention study all point towards some very clear messages from students:

- The quality of teaching at the University of Saskatchewan is good, but it can be improved.
- Students do not compartmentalize their lives into classroom instruction and other; rather, learning takes place in a variety of settings, times, formats and approaches, both formal and informal. Students make judgments about their post-secondary educational choices based on a wide variety of experiences, many of which do not take place in a lecture theatre, laboratory, tutorial, or rehearsal hall.
- Students want the University to hear their feedback and make adjustments. They want to know that their feedback counts.
- Students want their programs to be more innovative and to provide more opportunities for 'real world' experiences.
- Students want to be intellectually challenged and engaged in their learning.
- Students want an academic experience that will propel them towards their career goals. At the same time, critical thinking, ethics, reasoning, and other skills, while important for jobs, are also fundamental to the development of students as persons.

Faculty Perspectives on Teaching and Learning at the University of Saskatchewan. The University of Saskatchewan has been experiencing a major change in the nature and composition of its professoriate over the past decade and this change is expected to continue at least to 2010. The *Strategic Directions* identified 'attract and retain outstanding faculty' as one of four critical goals for the University of Saskatchewan, noting that 'faculty hiring is an investment in the future, probably the single most important investment any university can make'. It predicted that the University would recruit over 500 new faculty over the decade 2002 – 2012. The University hired 233 faculty members over three hiring cycles (2004, 2005, 2006). Almost 40% of the entire faculty complement has been recruited in the past five years (385 of 1012). Anticipated faculty turnover between now and June 2011 is an additional 330 new faculty; 170 of these positions will be available due to attrition from retirements and a further 160 due to predictable patterns of resignations or other factors. This influx of new faculty members brings with it a fresh set of perspectives and new challenges as the University strives to meet its teaching and learning, research, and outreach and engagement goals. The demographic features of the faculty, their time in rank, and their gender may have a major impact on faculty perceptions about teaching and

[20] For the 2007 edition of the *Globe and Mail University Report Card* over 43,000 students in 53 universities completed the Report Card Survey an increase from 32,700 and 49 universities in the previous year.

learning and specifically about expectations associated with obtaining a tenured position within the professoriate.

The high turnover in faculty makes it imperative that our university's approach to teaching and learning not be a policy that is cast in stone, but rather a flexible and evolving commitment that invites the energies and ideas of a dynamic and evolving community of instructors. We don't need a blueprint for teaching; we need a greenhouse for learning.

Between February and May 2006, Provost Atkinson engaged faculty and instructional staff in a series of discussions associated with the development of this Foundational Document. The effort was intended to illuminate faculty perceptions about teaching and learning. Meetings were held with faculty in all colleges except Law and Graduate Studies, with sessional lecturers and with graduate teaching assistants. Multiple meetings were held with teaching award recipients and new faculty. An 'open mike' session was also held in April. Over 240 faculty members participated in the 25 meetings scheduled and a handful provided additional written comments following meetings using the 'information request' form that was distributed.[21]

The overarching theme which arose from these discussions was the ***perceived value of teaching within the University***. There is a strong perception among faculty that there is an imbalance in the reward system which favours research and scholarly work over teaching. Faculty pointed to messages and signals received at appointment, surrounding consideration for tenure and promotion, for merit and recognition as evidence supporting this perception. They talked about the language associated with teaching when compared to research activity; invariably teaching was referred to as a 'load', not 'work' or 'opportunity'. They talked about how there was an apparent need to choose between placing more of one's effort into teaching or research and concluded that teaching would always be 'shortchanged' because efforts associated at being a good teacher or a better teacher or in developing innovative programs/courses/activities within courses were not rewarded in the same way as success in research (as demonstrated in publication). They further indicated that being successful as a teacher and receiving an award did not always translate into recognition either within a college/department or within the University.

This perception was pervasive throughout all of the group discussions. New faculty thought that the rewards for teaching excellence were insufficient for the effort expended. Teaching award recipients felt undervalued for their contributions and lamented the lack of a support structure to provide opportunities to share expertise of experienced faculty with others. They had a wide-ranging conversation about the necessity for the University to explain that both teaching and research are a priority, not just research. Although sessional lecturers provide a critical teaching resource teaching one-third or more of courses in many departments or colleges, they felt undervalued because they are not connected to curricular discussions and are challenged to keep current in pedagogy and best practices. Graduate Teaching Assistants thought that their efforts were undervalued because they were not treated as colleagues and they received limited support for their teaching.

The discussions with faculty were wide-ranging and several other topics were brought forward in these meetings which could be grouped together as themes. Illustrative of the varied nature of these discussions, some of the issues raised included:

- learning outcomes (what is meant by them?, is it possible to achieve a learning outcome on a university-wide basis?),

[21] A summary of the meetings was prepared by the Director of Institutional Planning and is published on the Integrated Planning website, www.usask.ca/ip.

- identifying and celebrating what we do well in teaching (talking about the innovative efforts we are already doing and building awareness of pedagogical innovation),
- the difficulties and work associated with curricular innovation (identifying supports which ensure that the workload of faculty is reduced to the critical elements rather than the administrative arrangements and providing policies or guides to ensure that faculty don't expend energy unnecessarily),
- the possibility of 'teaching only' positions or 'contracts' with faculty at different stages in their careers to acknowledge different areas of focus at different times in their careers,
- the supports faculty need to work with varied student populations (such as students with disabilities or international students),
- the need to emphasize teaching in the rhetoric and symbols of the University and in its publications and public relations activities.

Faculty and instructional staff who participated in these meetings were passionate about teaching and committed to improving it. Faculty generally want to learn effective techniques and new approaches to teaching, to provide creative and innovative opportunities to engage student learning, and be recognized for excellent teaching and rewarded for the effort associated with teaching innovation. They had many suggestions and ideas which would address some of the issues which they identified. For example, they suggested that the University consider:

- *creating a teaching certificate for faculty and making participation in the certificate part of the work assignment for all new faculty*. Several new faculty commented on their graduate experience indicating that such certificate programs were available at institutions where they obtained their graduate training. Some faculty thought that a certificate program would be a good idea, but that it should only be mandatory for doctoral level students since many of them might find themselves in front of a classroom at some point in their career. The Graduate Teaching Assistants suggested that GSR 989 [Introduction to University Teaching] should be made more available to graduate students (through more offerings).
- *providing and/or reinstating peer mentoring and coaching programs to improve teaching*. We were told several times about the value faculty placed on the peer mentoring program previously provided by the Gwenna Moss Centre. Faculty often spoke about the need to have a 'safe place' in which to get feedback about teaching ability and performance. They talked about concerns associated with 'experimenting' with pedagogical approaches in classes and the potential impact of that experimentation on teaching evaluations from students particularly prior in the lead up to tenure or promotion decisions. They thought that the largest benefit of a peer mentoring program would be the opportunity to discuss approaches to teaching with colleagues.
- *authorizing faculty to attend professional development opportunities related to teaching* within sabbaticals or separate funding to support attendance at a conference devoted to improving teaching. This might also include a teaching development award for new faculty along the lines of the existing research development award. It might also include the development of formal agreements at different stages of a faculty member's career which would have the effect of reducing research expectations while providing an opportunity to focus on, for example, an innovative approach to teaching.
- *ensuring that classrooms and physical spaces support different modes of teaching and learning* – from chalkboard to clickers. Faculty often spoke about the difficulties in innovation based on the physical space assigned for particular classrooms. Faculty also wanted to have the necessary resources to support changes in course delivery methods and support as they transitioned from one pedagogical approach to another. Some faculty spoke about the need to ensure that the traditional classroom continued to exist but that technological enhancements could also be available for use if desired.

- *promoting and celebrating teaching achievements, innovations, and successes and increasing attention within the University's symbols and rhetoric to teaching excellence.* It was clear from many of the discussions that insufficient time is taken to acknowledge, celebrate, reward and promote excellent teaching. Many discussions pointed to the lack of prominence of teaching award recipients on the University's web page and on the College Drive banners and the apparent inconsistency between what students remember about their education (great or good teachers) and the public symbols of the University. The creation of 'teaching chairs' was suggested as one additional way to acknowledge accomplishment and give prominence to teaching.
- *requiring all faculty to prepare teaching dossiers.* Faculty who spoke to this idea thought that the creation of a teaching dossier and its annual maintenance would ensure that teaching activity is 'mindful' and 'reflective'. A worthwhile idea might involve the creation of a new category on the University standard CV where teaching innovations, leadership, or curricular contributions could be listed.
- *acknowledging different expectations and work at different times in a faculty member's career.* Faculty want to have the opportunity to experiment with new approaches to teaching but find themselves constrained by the necessity to perform in all three components (teaching, research, outreach and public service). Several discussions focused on the idea that 'contracts' outlining expectations/assignment of duties could be established with faculty members at different stages in their careers. For example, a faculty member at the Full Professor level might wish to devote some time (say, a three year period) to researching and applying a particular teaching technique or approach and that this should be accommodated in the 'assignment of duties' discussion with department heads or deans.
- *creating an organizational structure that supports teaching and learning on campus.* Many faculty were struck by the investments that have been made in providing an organizational structure to support research and scholarly work and suggested that an organizational structure, including an Associate Vice-President for Teaching and Learning/Innovation, should be established to act as an advocate for teaching and learning.

The above section provides a very high level overview of what can only be characterized as engaging, passionate, and animated discussions with faculty and instructional staff. Many more ideas were presented in these discussions than are outlined here. It is clear that faculty at the University of Saskatchewan are very committed to teaching and learning and in finding solutions to address and overcome obstacles and barriers to their success. Faculty are looking for signals from the University that the effort that they have placed in teaching is appreciated. If that signal is provided, it is clear that there is the genuine good will and interest in change.

Common Ground

It should be apparent from the discussions above that faculty and students both want the teaching and learning environment to be an exceptional experience. While there are barriers which must be overcome, and while there is recognition that the barriers are not unique to the University of Saskatchewan, there is clearly common ground.

Both students and faculty want the University to value teaching and learning. For students this means connecting the research of faculty members more closely to the teaching that students receive, or providing a better explanation of why a more 'research intensive' university is beneficial to their educational program/experience. For faculty, valuing teaching and learning is about celebrating teaching excellence, talking about teaching strengths and innovations, rewarding faculty for efforts and achievements, and including teaching in the visible symbols and rhetoric of the University.

Both students and faculty want to receive/provide a more intellectually stimulating and challenging learning environment. For students this means more opportunities for more intellectual excitement and less regurgitation in the classroom and on examinations. For faculty and students, the opportunity to experiment or engage in different teaching and learning styles and approaches is important but along with that must come understanding and empathy, particularly for the faculty member who may choose a 'less than successful' approach the first time an innovation is attempted. For students, there is a need for faculty to have a better understanding of the pressures on the student within the context of 'life', not just the classroom. Faculty spoke passionately about the need to balance expectations and activities, particularly the need to recognize work/life balance and personal and professional pressures they face.

Both students and faculty understand the imperative of today's world – and the necessity to build lifelong learning skills into the educational experience. Students want to be skilled in communication, time management, research, technology, project management, people/inter-personal relationships, -- all skills that they will access throughout their lifetime. Faculty and instructional staff acknowledge that the development of lifelong learning skills is key to student success and that experiential learning and other new skills must be incorporated into courses and programs.

Both students and faculty acknowledge the 'excitement of discovery' and its transformational power, its ability to ignite passion for learning, for a particular discipline, for intellectual stimulation and engagement. The earlier this can be designed into curricular offerings the more likely students will be engaged in their own learning.

The above overview provides a powerful indication of student and faculty perspectives on teaching and learning at the University of Saskatchewan. Faculty and students both see needs and opportunities for change. But before attempting to pick strategies and priorities out of what they have told us, we also need to compare our ideas against what other institutions are experiencing, and ground our emerging proposals in scholarship.

V. Raising our Sights: Trends and Exemplary Practices in Teaching and Learning in Higher Education

While every faculty member has experience as a teacher and every student has experience as a learner, excellence does not come exclusively from individual experience or innate ability. As comments by students and faculty have made plain, both learning and teaching represent roles and sets of skills that can be learned and continuously developed. Teaching and learning are reflective, self-conscious forms of practice that can be enriched by ideas and models from elsewhere. For this reason, consideration of teaching and learning needs to take into account the burgeoning, diverse, and provocative literature that now exists concerning post-secondary education. We don't have to borrow someone else's template. We do have an obligation to test and locate our own ideas within the wider field of scholarship and reflection about the nature of learning and teaching.

This section of the document is intended to facilitate reflection within the wider field of scholarship by outlining a few general themes and providing an annotated bibliography pointing to some of the key recent contributions in the field. The steering committee, staff at the Gwenna Moss Centre for Teaching Effectiveness, and many faculty and students who participated in the preparation of this document had extensive and animated discussions of many of the ideas referenced here.

One of the most important themes in recent literature relates to the observation that teaching is not a self-contained or independent activity, but rather is embedded in context. It is, first of all, embedded in an institutional setting, in which the culture of the organization, the rewards for faculty, the nature of physical infrastructure, and the academic supports for students all contribute significantly to the effectiveness of what is accomplished. In the setting of a university, teaching co-exists with research and works best when the two are synergistic. But second, education is embedded in students' lives and acquires its full meaning and impact only in that context. It is for this reason that so many writers have urged a shift in thinking from looking at teaching as an isolated practice, to looking at learning in students' lives and what (including teaching) contributes to it.

Annotated Bibliography

Boyer, Ernest L. (1997). *Scholarship Reconsidered: Priorities of the Professoriate*. New York: The Carnegie Foundation for the Advancement of Teaching.

Scholarship (which encompasses the dichotomized research and teaching) has always been central to universities. Boyer calls for a reconsideration of what scholarship means, amidst a growing emphasis on research. His central argument is that the professoriate has four functions: the Scholarship of Discovery; the Scholarship of Integration; the Scholarship of Application; and the Scholarship of Teaching. The Scholarship of Discovery means classical research. The Scholarship of Integration takes what has been discovered and puts it in perspective. It gives isolated facts meaning and makes connections across disciplines. The Scholarship of Application applies knowledge to (social) problems. "Theory and practice vitally interact" and service and citizenship are foregrounded. The Scholarship of Teaching purports that "the work of the professor becomes consequential only as it is understood by others" (p. 22). Creativity is required in measuring and acknowledging excellence in all of these. Evaluation of faculty work, including teaching should be broadened, individualized, and continuous (p. 50).

Strum Kenny, Shirley et al (The Boyer Commission on Educating Undergraduates in the Research University). (1998). Reinventing Undergraduate Education: A Blueprint for America's Research Universities. New York: The Carnegie Foundation for the Advancement of Teaching.

The Boyer Commission report focuses on R1 research institutions (in the United States) and advocates for the importance of effective teaching in research intensive institutions, recognizing it has been lacking in the past (p. 5). Research institutions offer a "clear alternative" to a college experience (i.e. an American liberal arts institution). The authors use a metaphor of university as ecosystem (community) where everyone should be a discoverer (p. 9). They include "An Academic Bill of Rights", outlining the institution and students' commitments (p. 12). They name ten ways to change undergraduate education, many of which dovetail with the objectives of the Teaching and Learning Foundational Document at the University of Saskatchewan: research-based learning; inquiry-based first year; building on the first year experience; promoting interdisciplinarity; linking communication skills to course work; using information technology creatively; culminating with a capstone experience; educating graduate students as apprentice teachers; and cultivating a sense of community.

Smith, S. 1991. *The report of the commission of inquiry on Canadian university education*. Ottawa, ON: Association of Universities and Colleges of Canada.

Smith highlights the importance of Boyer's vision of scholarship and outlines several initiatives that Canadian universities should undertake to promote, enhance, and develop teaching. Although he suggests that assessment of teaching performance, as well changes in the faculty reward structure are

critical, he also points out that faculty should be given the opportunity to decide the primary basis on which they are evaluated (research or teaching).

National Panel Report. (2002). *Greater expectations: A new vision for learning as a nation goes to college.* Washington, D.C.: Association of American Colleges and Universities.

Calling for institutions that provide "learning of lasting value," this National Panel Report urges American universities to reconsider what (and how) students should learn once they enter into post-secondary education. Universities must meet, in a cohesive manner, the expectations of students, their families, communities, the work force, and the academic culture. *Each* group's expectations of a university graduate can be met by producing "empowered, informed, and responsible" learners. The U of S will benefit from the report's recommendations for supporting such learners, through adequate preparation prior to entering the institution, integrating its curricula, clearly articulating expected outcomes and standards, and collaborating with those within and outside of the academy.

Knapper, C. 2005. *Teaching and learning in Canada's research universities.* Notes for presentation to Canadian Summit on the Integration of Teaching and Research, University of Alberta, August 4, 2005. Accessed March 2, 2008, from http://www.uofaweb.ualberta.ca/researchandstudents//pdfs/ChrisKnapper-TeachingandLearninginCanada'sResearchUniversities(paper).pdf

This document is a set of notes that accompanied Dr. Knapper's presentation for the Canadian Summit on the Integration of Teaching and Research at the University of Alberta in 2005. The following is taken from the summary posted at the above URL: "There is a growing body of empirical research on university teaching and learning and a growing consensus about how teaching methods and instructional climate affect student learning approaches. This keynote will describe the highlights of this research and examine its implications for the way we undertake teaching and curriculum planning in research universities. How much of our teaching practice is based on the evidence from current research? What is effective learning in university; how can it be enhanced, and what evidence do we have for the effectiveness of our programs and teaching methods? How can we encourage a culture of teaching scholarship that might inform good practice for the future?"

Kellogg Commission. (1990). *The engaged institution.* Returning to Our Roots, third report.

The Kellogg Commission provides the results of a study on "engaging institutions", using the "institutional portraits" of numerous American land-grant universities as best practice models. Land-grant universities each boast foundations located in their extension work, so there are numerous similarities between the American models, and the University of Saskatchewan. The U of S can benefit from the Kellogg report that focuses on the historical benefits derived from prominent extension work, applied in combination with forward-looking theories and understandings about the modern student's needs, abilities, and social context. This document provides concise recommendations for increasing institutional engagement, including a seven-part test to be used periodically to check an institution's level of commitment to and achievement of institutional engagement. This test focuses on seven characteristics: responsiveness, respect for partners, academic neutrality, accessibility, integration, coordination, and resource partnerships.

Palmer, P.J. (2007). *The courage to teach: Exploring the inner landscape of a teacher's life.* San Francisco: Jossey-Bass.

In the chapter entitled "Teaching in Community: A Subject-Centered Education", Palmer discusses the benefits to a subject-centered, rather than teaching or learning-centered approach. Here, he

addresses the debate that has recently emerged in the literature- the idea that "students and the act of learning are more important than teachers and the act of teaching" (p.118). He suggests that rather than concentrating on the teacher or the students we should focus on the subject instead (albeit, with the right balance). He follows this discussion with examples of problem-based learning in the section entitled "Teaching from the Microcosm." Palmer's key message is interconnectivity- you cannot separate learning from teaching nor teaching from learning. He argues that "good teaching is always and essentially communal" leaving us with the message that cultivating a respectful, supportive, and engaging community around teaching is just as important as creating the same environment around students and learning.

Powney, J. ed. (2002). *Successful Student Diversity: Case Studies in Learning and Teaching and Widening Participation.* England: HEFCE.

Using examples of practice from twenty-three institutions of higher education (in the United Kingdom), the Higher Education Funding Council for England (HEFCE) identifies common principles regarding the success and retention of under-represented students, for the purposes of strategic planning. This document is valuable because rather than being prescriptive, it highlights several different yet equally effective models, allowing the reader to identify the models that are most relevant to his/her home institution and its mission. The U of S seeks, in the Foundational Document, to address the teaching and learning beliefs and practices at all levels of the institution. This document offers models that represent the institution as a whole, and models at the college, departmental, and even individual level. Powney is candid and provides cautions regarding potential pitfalls. Some of the terminology may not be immediately familiar (or comfortable), but this should not compromise what the document has to offer.

b) *HEFCE widening participation and fair access research strategy: 2008 update* [to above]

Bok, D. (2006). *Our Underachieving Colleges.* New Jersey: Princeton University Press.

Bok argues that universities are not engaging in systematic program design, delivery and evaluation to improve the quality of education, that although educational research provides evidence that engaging students in learning is more effective than traditional methods of teaching, this research is largely ignored. While course content is updated on a regular basis, there is a lack of emphasis on core skills such as analysis, critical thinking, problem solving, writing skills, and civic engagement. Teaching must be rewarded and institutions need to develop a clear set of values, educational priorities and directions that are implemented campus-wide.

Kuh, G., Kinzie, J., Schuh, J., Whitt, E. & Associates. (2005). *Student success in college: Creating conditions that matter.* San Francisco: John Wiley & Sons.

Based on a study of twenty universities involved in the Documenting Effective Educational Practice (DEEP) project, six shared institutional features were identified that foster student engagement and persistence:

- A "living" mission and "lived" educational philosophy
- An unshakeable focus on student learning
- Environments adapted for educational richness
- Clearly marked pathways to student success
- An improvement oriented ethos and
- Shared responsibility for educational quality and student success.

Kuh is the author of the National Survey of Student Engagement (NSSE) survey, which is used on an annual basis to obtain information from hundreds of four-year colleges and universities nationwide about student participation in programs and activities that institutions provide for their learning and personal development. The results provide an estimate of how undergraduates spend their time and what they gain from attending college. Survey items in NSSE represent empirically confirmed "good practices" in undergraduate education; i.e., they reflect behaviors by students and institutions that are associated with desired outcomes of college.

Bain, K. (2004). *What the best college teachers do.* Cambridge: Harvard University Press.

Based on the study of the practices of three-dozen distinguished university teachers who "had a sustained influence on their students", Bain explored six broad questions about their practice:

- What do you know about how students learn?
- How do you prepare to teach?
- What do you expect of your students?
- How do you conduct class?
- How do you treat your students?
- How do you evaluate your students and yourself?

Among the findings, he reported that exceptional teachers have an intuitive understanding of human learning. They focus instruction around student learning objectives, rather than content. They set high expectations for their students and emphasize the development of thinking and problem solving skills by providing authentic tasks for their students to grapple with. Exceptional teachers establish a trusting relationship with students based on mutual respect and are continuously looking for ways to improve their practice.

Barr, R. and Tagg, J. *From Teaching to Learning: A new paradigm for undergraduate education. Change*, November/December 1995, pp. 13-25. Published by Heldref Publications, Washington, D.C. 20036-1802. Copyright 1995.

Barr and Tagg discuss the shift from an 'Instructional Paradigm' to a 'Learning Paradigm' where the goal of educational institutions is to produce learning, rather than to deliver content. Focused around learning outcomes, the learning paradigm emphasizes a holistic approach in which a variety of strategies are used to enable students to construct knowledge based on past experiences. Faculty become designers of instruction while learners engage actively in experiences that allow them to integrate new knowledge and skills into their world view. Cooperative and collaborative learning are encouraged.

Recommended Additional Resources

Knapper, C.B. and Rogers, P. (1994). *Increasing the emphasis on teaching in Ontario universities.* Toronto, ON: Council on University Affairs, Task Force on Resource Allocation.

Although now a bit dated (published in 1994), this paper outlines policy and practice related to teaching and learning in Ontario universities. However, most of the barriers and challenges that Knapper and Rogers identify are still relevant within many Canadian universities. Perhaps the key message from this document is that policy is not enough; practice and institutional climate must grow to reflect the policies (and foundations) that are being developed. Knapper and Rogers provide several useful recommendations on which to model future institutional-level programs for teaching and learning. One area explored in detail is curricular change; a worthwhile initiative mentioned is at

Alverno College where programs are based on learning outcomes and student progress towards these learning outcomes is measured.

Wright, W.A. and O'Neil, M.C. (1994). *Perspectives on improving teaching in Canadian universities.* The Canadian Journal of Higher Education, 24(3), 26-57.

Abstract: (from the article)
"As a result of increasing concerns about the quality of higher education in Canada, many universities have implemented programs and policies aimed at improving teaching. This study examines the perceptions of those individuals who are primarily responsible for teaching improvement activities at fifty-one Canadian degree-granting institutions. Respondents indicated the potential of each of thirty-six practices to improve teaching at their respective institutions. The findings reveal a widespread belief that the greatest teaching improvement potential lies in the provision of incentives to faculty in the form of employment rewards (appointment, tenure, promotion). The role of department heads, deans, and senior administrators in creating an institutional culture which encourages effective instruction is also seen as an important component of a teaching-improvement strategy. Other areas considered include activities and support structures which provide opportunities for faculty to develop their teaching abilities. Practices which seek to evaluate instruction for the purposes of making personnel decisions were seen as having the least potential to improve teaching."

Taylor Huber, M. and Hutchings, P. (2005). *The advancement of learning: Building the teaching commons.* San Francisco: Jossey-Bass.

Abstract: (from: http://www.carnegiefoundation.org/publications/pub.asp?key=43&subkey=1254)
"*The Advancement of Learning* answers questions readers are likely to have: What are the defining elements of the scholarship of teaching and learning? What traditions does it build on? What are its distinctive claims and possibilities? What are the implications of the scholarship of teaching and learning for academic culture and careers? How does it shape the student experience? In addition, authors Mary Taylor Huber and Pat Hutchings introduce a new concept that expands on the scholarship of teaching and learning—the teaching commons. As the authors explain, the teaching commons is a conceptual space in which communities of educators committed to inquiry and innovation come together to exchange ideas about teaching and learning and use them to meet the challenges of educating students for personal, professional, and civic life."

Emerging Themes

At some risk of over-generalizing, certain general themes emerge from the above literature and the recent scholarship on the nature of higher education. Perhaps the most important new thinking is around the question of what we want students to have gained from their university experience by the time they leave the campus. It is important to remind ourselves that outcomes such as expanded knowledge and improved career prospects are not trivial: these are important to many students, and are areas in which students here and elsewhere are largely satisfied. But the tenor of the recent literature by professional educators is that such outcomes are not in themselves sufficient for what a university is intended to accomplish. Something more is needed, or at least highly desirable. There are indications in survey responses and focus groups that students themselves respond positively to "something more" – experiential learning being an example – though understandably they are less articulate than professional educators about what a university has not given them. The following are glimpses, gleaned from the literature, of the distinctive added value of a university education compared to other life experiences. As such, these are indications of possible directions and priorities for the University of Saskatchewan to pursue across our programs and functions:

- ***Strong analytical, literacy/numeracy skills and methodological sophistication.*** It is insufficient in today's world for university graduates to merely collect and reproduce data/information and ideas. With the advent of the internet and the explosion of information, students must know how to access, evaluate and use information of all sorts. Students who acquire strong analytical, literacy and numeracy skills and whose methods are innovative and cross-disciplinary offer important challenges within scholarly communities and have a far greater chance of contributing in significant ways to vibrancy and growth in those communities. In a global environment characterized by environmental, economic, and social challenges, universities are major sites for creating engaged citizens and democratic habits of mind. Critical thinking is a primary requirement for these roles as it is for many jobs, professions, and positions of leadership. It goes beyond formal logic as such and also includes skill in working with incomplete evidence, ability to evaluate quantitative evidence and reasoning, and coherent discussion of moral and ethical issues.

- ***The ability to communicate in a variety of settings with a variety of media.*** Clear communication is an indispensable counterpart to clear thinking and is a quality expected in every university graduate whether in sciences, professions, arts, or humanities. University courses and programs have long (and, in some areas, increasingly) featured oral and written communication as activities for students to practice and perfect. Institutions that are serious about such skills as an important learning outcome build them systematically into their programs and feature them as essential aspects of what a university does. Concentration on strong communications skills as a primary outcome of all academic programming is important.

- ***A level of comfort with and proficiency in information and communications technology.*** Today, proficiency in society as in the university requires a high level of capability in the use of digital information systems of many kinds. A well-educated person is also one who knows how to extract appropriate information from a database, a multi-media object, an e-learning module, an online learning community, and from other sources whose shape we can hardly predict today. So far the University of Saskatchewan has invested heavily in its information and communications technology infrastructure to support learning and teaching. Our campus portal (PAWS) offers several ways for members of the university community to communicate with each other, to access University services, and to support teaching and learning. The reception of this information and service portal, particularly by students, has been enthusiastic, and suggests that such a medium will continue to be the backbone for communication within the campus community. Also, with the explosion in new communication vehicles and new online instructional technologies, it is becoming more difficult (and less important) to distinguish between online and campus-based courses. A growing number of instructors are migrating their courses or portions of their courses to online environments, and students are building their programs out of mixtures of conventional face-to-face, online, and blended offerings. As technology continues to pervade our learning and teaching activities, ensuring students' and faculty capability to make the most of technology requires our constant attention.

- ***A deep understanding of a particular area of academic work.*** In undergraduate programs, the university strives to cultivate educated persons; in Hannah Arendt's powerful phrase, to foster and celebrate "the life of the mind."[22] Such an education strives for both breadth and depth. While strong academic programs and faculty with disciplinary expertise ensure deep and rigorous specialization, undergraduate distribution requirements and electives are intended to ensure that students encounter fields of inquiry to broaden their understanding of contexts shaping

[22] Arendt, Hannah (1978) The *Life of the Mind*. New York: Harcourt, Brace, Jovanovich.

contemporary life, their own and other cultures, and different ways of knowing. These fields range from history, the arts, literature, philosophy, cultural studies to the natural and social sciences and various professional fields. Such breadth is also fostered by significant interaction within a diverse student body and through service learning. Through the systematic study of particular areas of academic/scholarly work, students have the opportunity to engage in a deep approach to learning[23] with faculty and other students. In this way they come to construct their understanding and feel for particular ways of knowing the world – key insights, theories, methodologies, practices, beliefs, and an accumulated body of knowledge. Also, sustained interaction with faculty and other students – in communities of practice[24] – helps students to develop understanding that involves analyzing literature, asking questions, recognizing assumptions, conducting research, integrating a field as a coherent whole, and communicating in a field. Because such deep learning is often developed through observation and practice more than directly taught, interaction among faculty and students in disciplinary programs and professional programs is critical to engaged and lasting learning.

- ***Intercultural knowledge.*** Students leaving university, be they domestic or international students, progressively live and work in a global context where a wide variety of mores and abilities exist. A learning experience which takes account of these contexts (global, sexuality, ability, gender, politics) and equips students with a positive, culturally aware and sensitive outlook and approach to life, learning and work contributes positively to the development of tolerant and strong democratic communities into the future. This does not mean only studying *about* global or gendered issues; it also means finding the global or gendered issues and forces, the cultural divides and diversity that exist within Saskatchewan itself. Opportunities for learning, which provide for an understanding of diversity and the ways in which diversity manifests itself, should be included into the curriculum as well as into the general campus life experience. Writers have pointed to the importance of exposure to second languages, persons with different abilities, courses in cultural and gender studies, travel abroad, exposure to politics, or experience in diverse communities as essential aspects of what a university education is intended to achieve. The University has the potential to provide a vastly enriched educational and work experience while students are here and when they move on to new contexts.

- ***Collaborative problem-solving skills.*** The complexity of today's knowledge/art has placed high value on the outcomes gained by multi-disciplinary teams who have worked together to solve perplexing problems within specific timeframes. Urgent and complex problems, such as HIV/AIDS, the effects of greenhouse gases, or the nature of poverty and social exclusion foster collaborative multi-disciplinary approaches both inside the university and in the communities where citizens and professionals grapple with these issues. University graduates need to know how to work with others to achieve goals. Joint decision-making, pacing, and persistence are difficult to measure but are important aspects of how our graduates will need to live their lives.

- ***A heightened appreciation of ethical issues.*** Human endeavors have impacts on people and on our shared environment. The connections brought to our awareness by globalization raise critical

[23] For the distinction of deep and surface approaches to learning, see Marton, F and R. Säljö (1976) "On Qualitative Differences in Learning" — 1: "Outcome and Process"; 2: "Outcome as a function of the learner's conception of the task" *British Journal of Educational Psychology* 46, 4-11; 115-27. For more recent use and development of this distinction, see Ramsden, Paul (1992) *Learning To Teach in Higher Education*. London: Routledge and Tagg, John (2003) *The Learning Paradigm College*. Bolton, MA: Anker Publishing.

[24] Wenger, Etienne (1998) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.

ethical issues that are an integral part of university students' curriculum no matter what their field of study. In all areas, ethical questions must be posed and possible ways of addressing them considered. Our graduates need to be able to pose these questions and live by ethical standards that they understand and appreciate. Higher education has a role in helping people to identify and understand their own ethical standards.

- ***Habits of mind that foster integrative and interdisciplinary thinking.*** An often-remarked-upon feature of university-based knowledge is the habit of viewing complex problems through simplified frames. While this technique is powerful, it has always been true, and is increasingly so today, that students need to be able to understand the frames they are employing and go beyond them when a problem requires it. Experience with integrative and interdisciplinary thinking develops this capacity. Learners who are well practised at the habit of integrative thinking are open to oppositional or contradictory information or ideas and see them as an interesting challenge rather than not knowing how to respond to them. Integrative thinking fosters curiosity and innovation, two critical learning outcomes of high value in today's world. It is an ongoing challenge for universities to continue dividing the world into useful boxes while enabling students to think outside them.

- ***A portfolio that captures their learning experience and conveys their interests and skills.*** One way of articulating the key outcomes of a university education is to identify the elements of personal development that result from the academic experience and prepare learners to deal with new situations. These elements, sometimes referred to as capabilities, typically include critical reflection, self-assessment, goal-setting, problem formulation, and negotiation skills. A learning portfolio is both a process and a product that provides the context for presenting these capabilities in a systematic way. The term "portfolio" is well-known in fine arts fields, and is increasingly valued in other fields of higher education and professional preparation. The evidence of personal growth consists primarily of written entries by the learners themselves, complemented by the presentation of artifacts collected in the course of experiential learning. In some universities, students are guided to develop a learning portfolio that monitors their personal growth and presents their achievements over the course of their undergraduate experience.

- ***Community engagement and experiential learning.*** Students and scholars of education agree that hands-on learning focused on practical problems provides important benefits to students: not only that they develop and retain deeper understanding, but also that they learn integrative thinking. Where experiential learning takes more formal shape as an identifiable activity or component such as internship or volunteer service, it also helps students document their experience for career purposes. The key feature is that engagement with real – physical, social, or spiritual – issues makes clear both to students and to the outside public that university education *matters* and makes a difference. Some institutions have set a goal that every student complete an experiential-learning activity prior to completion of an undergraduate degree.

The above themes represent the kinds of 'learning outcomes' we might wish to ascribe to our students or to the degrees they obtain, but they are not an exhaustive list. The issue for the University of Saskatchewan is that we have not stated these outcomes directly nor have we systematically ensured that they are reflected in program or course planning and development. We need to ensure that we have agreed on the attributes of a University of Saskatchewan graduate and that we have institutionalized these commitments by ensuring that degree programs and courses as well as services are designed with these outcomes in mind. One way to do this is to ensure that the Academic Programs Committee of Council requires learning outcomes in all programs and courses as part of the program approval process.

The preceding ideas are common ones in the contemporary literature on higher education, indicating directions and potentials towards which universities are currently striving. They are exciting, energizing, and challenging ideas that renew the spirit of what a university education is about. No one has a single best model for how to accomplish them – there is opportunity for the University of Saskatchewan to be excellent and to be a leader in the areas of its choice. But, we do have to choose, at least where we wish to begin.

VI. Implications for Teaching and Learning at the University of Saskatchewan: What are we doing? What else do we need to do?

This Foundational Document began by acknowledging the University of Saskatchewan's reputation for excellence in high quality undergraduate and graduate programs. The University has already made significant commitments in a number of key areas to support student learning and enhance teaching effectiveness. We are not starting from scratch. Indeed, the development of this Foundational Document has already been paralleled and accompanied by incremental action to support teaching and learning. Recent initiatives, some of which are still fledgling, include:

- *creation of the University Learning Centre (ULC)* in January 2007 to provide a focal point for the delivery of support services for students and faculty campus-wide. The ULC has as its goal the active advocacy of exemplary practices and innovations in teaching and learning on campus and beyond. Addressing teaching and learning needs of both instructors and students, the ULC works collaboratively with colleges, departments, and administrative units to coordinate and, where appropriate, conduct programs and initiatives that complement and augment existing efforts in teaching and learning support; enhance student success; nurture teaching excellence; yield research opportunities; and support University-wide goals to improve the student experience and to deliver high quality educational programs. The ULC is the home for three related subunits: the ULC student programming group which provides service learning, peer counseling, writing and math help and readiness programs to students; the Gwenna Moss Centre for Teaching Effectiveness (GMCTE) which focuses on supporting faculty and instructional staff on campus to improve teaching and instructional content; and the Centre for Distributed Learning (CDL) which focuses on research into learning and teaching technology within the University.

- *implementation of the Undergraduate Forum* in September 2007 to provide a vehicle for bringing together students and administrators to discuss issues related to the student experience which have University-wide implications. Early indications are that this Forum is providing a venue for sharing practices and developing policies to address student issues.

- *adoption of the Student Evaluation of Educational Quality (SEEQ) by University Council as a University-wide instrument for student evaluation of teaching* in June 2007. An implementation plan for full distribution and utilization of the SEEQ was developed during the 2007/08 academic year and the SEEQ was applied as the teaching instrument in 22 departments within seven colleges and one school (Agriculture and Bioresources, Arts and Science, Education, Engineering, Kinesiology, Medicine, Nursing, and the Edwards School of Business).

- *amalgamation of the Registrar's Office and Student Services into Student and Enrolment Services Division (in 2002) and the creation of Student Central* to provide a 'one-stop' centre as an entry point and front-line service provider for undergraduate and graduate student with the University. In operation since 2004, Student Central is now a well established centre on campus. Annually,

graduate and undergraduate students phone, e-mail or visit Student Central for a variety of services and support. Staff are trained to provide information and options with consideration for each student's individual needs and unique situation. In addition, online services and other technologies have improved accessibility and relieved staff from some of the more routine tasks, allowing them to focus on more complex student needs. More deliberate and automated forms of activity tracking are being developed and implemented this year to direct future service enhancements.

- *creation of the Aboriginal Student Centre (ASC)* to provide support programs and services to students who self-declare as being of Aboriginal ancestry and who register with the centre. The ASC assists with setting up cultural meeting places and ceremonies both on and off campus, acts as a resource for faculty and staff, as well as provides essential supports for Aboriginal students. It works with the Aboriginal First Year Experience Program (AFYEP) which aims to increase first-year retention rates and encourage Aboriginal student enrolment in all areas of study. Since 2005, the ASC has been working with the College of Arts and Science Math and Science Enrichment Program.

- *implementation of the GSR 989, Introduction to University-level teaching course, and its further development* into Transforming Teaching, a primarily online course for faculty. The Gwenna Moss Teaching and Learning Centre (now the Gwenna Moss Centre for Teaching Effectiveness) established GSR 989 and created the framework for Transforming Teaching. Both courses are being offered annually with three sections of GSR 989 planned for the fall of 2008.

- *approval of new Standards for Tenure and Promotion* [2002] which provide a clearer articulation of the evidence that needs to be assembled to support teaching as one of the mandatory categories of assessment for tenure and promotion considerations.

- *college/department/unit based initiatives:* Many departments and colleges have been reviewing and implementing program innovations in ways too numerous to record here. As the *Second Integrated Plan* developed, it became clear that teaching and learning were prominent in the planning of colleges, departments and administrative units. This high level of interest translated into the first priority area in the plan: improve the undergraduate and graduate student experience, both inside and outside the classroom. The implementation plan for the *Second Integrated Plan* should highlight college/department/unit based initiatives which support teaching and learning.

While we have addressed some critical gaps and needs, there is still much more that we can do. In this regard, it is worth re-stating the argument presented by Derek Bok in *Our Underachieving Colleges*. Bok argues that **universities are not engaging in systematic program design, delivery and evaluation to improve the quality of education.** [25] He suggests that although educational research provides evidence that engaging students in learning is more effective than traditional methods of teaching, this research is largely ignored. While course content is updated on a regular basis, **there is a lack of emphasis on core skills such as analysis, critical thinking, problem solving, writing skills, and civic engagement.** Teaching must be rewarded and **universities need to develop a clear set of values, educational priorities and directions that are implemented campus-wide.** Learning from others and building on shared experiences, we need to make important advances. By grouping the areas for improvement together, the work ahead becomes more obvious.

[25] See, for example, the following chapters: learning to communicate, learning to think, building character, preparation for citizenship, improving the quality of undergraduate education.

1. **DEVELOP CORE SKILLS IN STUDENTS.** Building on the description provided in section x above, the University should identify and support a set of core competencies that every student would demonstrate at graduation. Initially, we should:

   - ***Ask University Council to adopt a bill of rights or a set of guiding principles for teaching and learning.*** One way to focus the attention of the entire University on the importance of new approaches and renewed commitment to teaching and learning is to adopt a guiding statement. While such a statement would be non-binding, it would set direction, influence organizational culture, and authorize particular kinds of experiments (to be developed through normal processes). Such a statement could include:
     - equality and interdependence of teaching and research
     - respect for academic freedom
     - integrity and ethical practice in academic endeavours
     - student-centred learning and teaching
     - support for lifelong learning
     - research-enhanced learning and teaching
     - an integrated and coherent student experience
     - recognition and celebration of diversity
     - continuous improvement of teaching and learning
     - variety in learning environments and learning experiences
     - commitment to enabling student academic success
     - preparation of students for roles as citizens

   - ***Give students the tools for self directed learning.*** Colleges and other specialist units, such as the Library and the University Learning Centre, play an important role in assisting students to become self-directed, life-long learners, well beyond the initial years of their University education. In this context, teaching students to find their way through the maze of information currently available (including on the Internet) and evaluate it, is critical. Students gain skill at learning through experience and mentorship. It is important that through our academic programs, students have opportunities to hone their learning skills and are provided the tools to become more successful learners. One goal of a university education is to prepare students for a lifetime of learning; to offer them skills in communication, literacy, numeracy and critical thinking valuable throughout their lives. Academic programs and supplemental educational experiences need to be coordinated to achieve an appropriate level of disciplinary knowledge, measured by explicit planned learning outcomes, as well as a suitable capability with the complementary learning skills that cut across knowledge domains. Explicit teaching of the skills associated with self-directed learning rarely finds its way into disciplinary courses. Auxiliary learning opportunities afforded through the Library and the University Learning Centre are directed toward these foundational learning skills. Partnerships between academic departments and the Library and the University Learning Centre can provide a beneficial synergy to help students acquire these important life-learning skills.

2. **SYSTEMATICALLY DESIGN COURSES/PROGRAMS.** Building on the description provided in section x above, the University should commit to the systematic analysis, design, development, implementation and evaluation of courses and programs. This effort should include opportunities for interdisciplinarity, new teaching techniques and new learning opportunities for students. Initially, we should:

- ***Build experiential learning programs of all types more deliberately into curricular offerings.*** The idea of experiential learning[26] is intuitively straightforward. Students use direct, concrete, experiences to construct generalized knowledge that can be applied to new situations. The emphasis is on the individual learner, who, sometimes with a minimum of direction, confronts a learning opportunity and extracts a learning experience. This type of learning is deeply personal and requires the learner to be actively involved, not simply attentive. The teacher is responsible for constructing the learning experiences, but the evaluation process itself is shared between student and instructor. Examples range from internships, clerkships, and co-operative education programs, to group presentations, field work, service learning programs, and independent research projects. These are powerful learning opportunities. Supports will have to be provided to assist faculty, but the message from students is clear: we need more of these opportunities. Experiential learning also can involve engagement, through credit learning activities, with external communities and their frequently interdisciplinary issues and ideas. In these respects experiential learning not only makes the world real to the student by giving them an academically relevant experience in the community, but also makes the university real to the outside public by inviting the community into the university more systematically. Such learning also assists with a related task, facilitation of students' transition into the roles that will be expected of them as productive members of society and as citizens. Forms of experiential learning with a focus on community and critical reflection, such as service learning, or community service-learning (CSL), have great potential to provide meaningful interchanges between students and a variety of local or international communities, to provide opportunities for research linkages, and to experience multidisciplinary, issues-based team approaches. At the university level, capacity to support new experiential and community-based learning needs to be further developed. It would, in addition, be of interest to explore a possible supportive role by the University of Saskatchewan Alumni Association in developing experiential learning opportunities in settings where alumni are active.

- ***Build inquiry-based learning opportunities into the curriculum to connect learning with discovery more deliberately.*** The University of Saskatchewan has built a considerable infrastructure to support research and scholarly work, particularly in the sciences, over the past decade. The University needs to ensure that the full benefit of these investments is made available to undergraduate and graduate students. As the Boyer Commission articulated, only in a research intensive and engaged university can a student make the connection between learning and discovery. The *Second Integrated Plan* makes a strong commitment to innovation in programs and specifically singles out the need to link teaching and research/scholarly and artistic work through the creation of inquiry-based learning opportunities for students throughout their programs.

- ***Develop multiple measures of learning outcomes for courses and programs.*** Continuous improvement or development of courses and programs in universities is an idea which

[26] Experiential learning is normally defined as engaged learning in which the learner experiences a visceral connection to the subject matter. Good experiential learning combines direct experience that is meaningful to the student with guided reflection and analysis. It is a challenging, active, student-centered process that impels students toward opportunities for taking initiative, responsibility, and decision making. There are many forms of experiential learning including cooperative education programs, internships, service learning, inquiry-based learning, practicum, work study, international study abroad programs. For some definitions, please see: http://www.communityservicelearning.ca/en/welcome_glossary.cfm or http://www.compact.org/faqs/s-ldefinitions.html or go to www.usask.ca/ip to access a document prepared by the University Learning Centre describing varieties of experiential learning.

assumes that even things that are good can always be made better. In the past, the majority of changes took place at the course level; overall learning outcomes and the design and sequencing of courses received less attention. Student complaints signal that there were design/sequencing/overlap issues in a number of cases. The focus is beginning to shift from course to programs, particularly for the professional programs, but there is more that we can do. A key element in a learning-outcomes-based program is the authentic assessment of student achievement. While the traditional multiple choice quiz and/or essay can still be valuable if used appropriately, instructors and students must strive to find alternative ways to measure outcomes from the various learning activities within the program. These can include such things as portfolios, interviews, and team projects. Course evaluations are critical but must focus on what students thought of the learning and not just whether they "liked" the course or instructor. Part of this should measure how involved they became in their own learning and how much effort they put into the activities. Exit interviews are one way to also measure how effective whole programs have been and how they might be adjusted to meet student and instructor needs. Here it is important to distinguish between "wants" and "needs". Authentic assessment means that it is something meaningful in process and outcome for both instructors and learners and that it blends both wants and needs across the diversity of instructors and learners in a particular program. In other words, it is not only the individual student or the individual instructor who is evaluated, but the learning environment and the program; it is not only performance that is evaluated, but outcomes. Thinking in this fashion involves something of a paradigm shift. Leadership needs to come at each level of the university: departments, colleges, and the Office of the Provost and Vice-President Academic.

- ***Encourage innovation within our courses and programs.*** Generally the University relies on the individual faculty member to create a course and envision all of the learning opportunities, methodologies, etc. Somewhat too often, courses are designed individually with little apparent attention to the connection between courses and the program of study. Students often complain about the repetitive nature of course offerings, a sure sign that the program content is not clearly articulated or that learning outcomes have been advanced. Some aspects of this problem can be addressed by specific measures outlined in this Document. However, the solution also more generally lies in an organizational culture that values learning and expects innovation. The tone for such a culture is set by the university's academic leaders, among whom the Provost and Vice-President Academic should be charged with a particular responsibility. Colleges and departments can also assist through the creation of committees which support program innovations which enhance teaching and learning throughout the University.

- ***Commit to periodic assessment of programs and of academic and support units.*** Much has been learned from our experience with the Systematic Program Review (SPR) process, particularly in the review of academic programs. Yet, we know that there are many more activities within the University that directly relate to the student experience which can and should be evaluated. We know that many other universities focus on the unit (department, college, administrative unit) or the services provided as the points of measurement. We know too that unit reviews are increasingly undertaken to ensure that appropriate systems and processes are in place to support the academic goals and directions of the University, not just to evaluate the quality of a particular unit (although that continues to be an important consideration). While we will constantly strive to improve our programs, our services, and our organizational structures, we need to assess our progress against exemplary practices in other jurisdictions to ensure that we are not 'stagnant' while others are moving ahead. This can be done in conjunction with the development of college and unit plans which are an

integral component of the Integrated Planning Initiative. This may also be required where critical programs and services are identified or singled out for specific attention. While a systematic review of units will not be centrally sponsored, standards need to be created and reviews need to be conducted to inform planning. The Provost and Vice-President Academic has a clear responsibility in this regard.

- ***Provide excellent support for improvement of classroom teaching and innovation in course design***. In the course of the discussions about this Foundational Document, various faculty members expressed an interest in professional development including peer mentoring and coaching, using sabbaticals and conferences to develop teaching ability, creating an in-house system of teaching certification, working with all faculty to create teaching dossiers, and many other approaches. Behind many of these ideas lies the common goal of encouraging innovation and experimentation with a wide variety of teaching methodologies – active learning, problem-based learning, first year seminars, and generally a richer array or options to suit different learning styles within programs. While many of these ideas need to be worked on within colleges, units, and programs, at the university level the University Learning Centre and the Gwenna Moss Centre for Teaching Effectiveness were created to be the University's main agent for leading, promoting, supporting, and excellence and innovation in teaching. The EMAP, which has a core group of instructional design experts, should also provide assistance in course and program design and in particular in ensuring that program goals are mapped throughout the curriculum and that programs and courses are intentionally designed to offer a wider array of possibilities for students.

- ***Provide excellent physical space and IT infrastructure for teaching.*** Although the University has undertaken a classroom renewal and upgrade project over the past decade under the leadership of EMAP, there is still considerably more that needs to be done. Students and, particularly, instructors made plain that space and equipment provide constraints on adopting new formats and methods of learning in many cases. By definition it is difficult to adjust constructed physical spaces quickly, but it is becoming increasingly urgent to ensure a dialogue between evolving academic needs and learning innovations on one hand, and essential support services provided by Information and Communications Technology and by Facilities Management Division on the other, all of which need to be integrated into long-term capital planning. In this context the Provost's Committee on Integrated Planning needs to take up the issue, working with the Planning and Priorities Committee of University Council, to ensure the smoothest possible co-ordination between different parts of the university.

3. **FOCUS ON TRANSITION TO UNIVERSITY LIFE AND ON THE FIRST YEAR EXPERIENCE OF STUDENTS.** Much of the information gleaned from the University of Saskatchewan Retention Study pointed towards the need to address the critical transition from high school to university and to build a strong support system for first year students. This will require the effort of the whole university community, ensuring that new students are welcomed and supported as they experience higher education. Initially, we should:

   - ***Reach out to facilitate a successful transition into university education.*** Many students face great difficulties in their first year at the University. The move to a new city, a different scale of educational institution, a less controlling educational environment combined with a myriad of social and personal pressures to make the first year on campus difficult and challenging. Students have to learn how to be university students and have to do so under considerable pressure and with severe time constraints. The University needs to work with guidance

counselors, parents, community leaders, teachers and prospective students to gain a better understanding of their needs before they enter the doors of academe. It needs to work more closely with the K-12 system to make university education less of a mystery and a more intentional choice for students and to help the K-12 system find ways to ensure that students coming to university have the preparation they need for advanced study. Student Enrolment Services Division (SESD) is the University's most important facilitator and point of contact with the secondary system, and SESD needs to draw in colleges and faculty for direct dialogue with K-12 educators. At the same time, the direct-entry colleges need to concentrate on supporting successful transition, to provide adequate counseling and advising, and to rapidly identify at-risk learners.

- ***Focus on the first year experience of students and develop retention strategies that ensure academically talented students complete degree programs.*** At the University of Saskatchewan, we guard our academic standards with great vigour. At the same time, we must examine our practices and make adjustments to ensure that we are not systematically deterring capable students from completing programs of study at our University. Stated differently, we must ensure that we provide appropriate learning and social support mechanisms so that students achieve success in our academic programs. The recently completed Retention Study and the results of a growing number of student surveys highlight the need for the University to be pro-active, to create necessary support programs and services, to ensure that these talented students obtain the help they need to succeed at this crucial stage in their academic career. Student and Enrolment Services Division, the University Learning Centre, and the colleges and academic departments all have important roles to play in ensuring student participation and retention. Among strategies to be pursued, particularly, within colleges, the fostering of student "learning communities" and other forms of peer-to-peer student interaction is particularly promising, notably for students of Aboriginal background.

4. **EXPLORE ALTERNATIVE APPROACHES TO DELIVER PROGRAMS.** The University of Saskatchewan has traditionally counted on students to come to the University campus to study. In this era, we must explore and adopt alternative approaches to deliver our programs. Initially, we should:

   - ***Expand flexible opportunities to access the University in community settings.*** New and emerging information communication technologies (ICT) make it possible for the University to expand access options for those wishing to undertake a University education, including, for example, improved access for rural, remote and regional communities. Yet as a University our standard model of teaching and learning might be called "assembled learning." In this model, learners and a teacher assemble at the same time in the same room. Learning is facilitated largely through the use of spoken language in real time. This model has great advantages, which is why it has persisted for centuries. However, it also has disadvantages for some learners, who may have difficulty getting to the place where this "assembled learning" occurs or getting there at the designated time, or even keeping up to the pace set by the instructor. At the University of Saskatchewan, there is growing use of e-learning technologies in our various academic offerings, supporting both the standard model and a new distributed learning model where the "learning assembly" is virtual and the constraints of special co-location, time synchronicity and pace of activity are relaxed. However, it can create new problems such as the challenge of creating "social presence" in a learning environment that may rely more heavily on written rather than spoken communication, particularly when that communication is asynchronous. The colleges and departments need

to work with the academic support units (Centre for Continuing and Distance Education (CCDE), Educational Media Access and Production Division (EMAP), University Learning Centre (ULC) and Information Technology Services (ITS)) to ensure that the University of Saskatchewan grows in its competency and capacity for distributed learning. While the CCDE and EMAP have expertise in program delivery and e-learning design respectively, the roles and activities of these units do not replace those of departments and colleges which will continue to have overall responsibility for courses and programs, including those delivered by non-traditional means.

- ***Expand the University's emphasis on e-learning.*** At the University, we make use of a variety of e-learning technologies including presentation technologies (e.g. Power Point), communication technologies (e.g. e-mail, chatrooms, discussion forums, video-conferencing), learning management systems (e.g. Blackboard), websites and learning portals (e.g. PAWS), learner response systems (e.g. surveys and Clickers), and discipline specific software (e.g. simulations, educational games, etc.). There are a number of courses that are fully online (without face-to-face classroom interaction), while many other courses employ blending of e-learning technologies with face-to-face instruction. All indications here and elsewhere point to significant growth in e-learning in the next several years. Unfortunately, we have not yet fully articulated a strategy for e-learning. A draft e-learning strategy document has been discussed with the Instructional Development Committee and Deans' Council in 2007, but the document has not received widespread discussion and no implementation plan has been finalized and approved. An ad hoc committee has been created to set priorities in e-learning, but to date has focused mainly on how to allocate Government TEL funds to develop new online courses. As we increasingly adopt more of the distributed learning model in all our teaching and learning endeavours, we must pay attention not only to the relevant administrative and financial issues, but also to relevant pedagogical issues. Several ideas were advanced in the draft e-learning strategy document, including the structure for e-learning leadership, planning and coordination; improved integration of online courses into the curriculum; and enhancement of e-learning research. It is clear that the University of Saskatchewan needs to make systematic and systemic advances in e-learning to remain competitive. We also must move beyond the situation where a small group of enthusiasts do e-learning projects. E-learning technologies must be integrated universally and systematically into our courses, programs and procedures.

5. **ESTABLISH MECHANISMS TO SUPPORT OUR COMMITMENT TO TEACHING AND LEARNING.** From the research conducted in the development of this Foundational Document, it is clear that the University of Saskatchewan has to re-state its commitment to teaching and learning and reinforce that commitment at every level within the University. Initially, we must:

   - ***Recognize and reward outstanding teaching by individual instructors and academic units.*** Recognizing and rewarding teaching excellence is one way to encourage instructors to focus and concentrate on improving their teaching. Outstanding teaching comes in many styles and many forms. Carefully designed courses, lectures, and instructional activities along with pedagogically sound curricula and programs contribute to outstanding educational experiences for students. Because the University values excellence and innovation in teaching, those academic units and instructors who are identified by students or peers as providing excellent instruction deserve special recognition and treatment. Thus it remains important to encourage and document accomplishments and improvements in teaching, and those providing a comparatively low standard of instruction must be guided to seek out

assistance and make improvements. Department heads and deans have a primary responsibility to guide their faculty to document their teaching and to access support services such as those of the University Learning Centre; to guide tenure and promotions committees to recognize what has been documented; and where appropriate to institute new awards and forms of recognition. The Provost and Vice-President Academic has a supportive role to play. A possibility would be to focus a segment of the Department Head Leadership Development Program on brainstorming and problem-solving around this issue. Another might be the creation of a *Provost's Series on Teaching and Learning* to provide an opportunity for excellent faculty and instructional staff to showcase their approaches or to provide a high profile venue to discuss issues related to teaching and learning, such as articulation agreements with other post-secondary institutions, the relationship of the University to the K-12 system, e-learning, course and curricular design, international, discovery-based and experiential learning approaches and opportunities.

- ***Demonstrate at all levels that the University of Saskatchewan values learning and teaching.*** There can be no doubt that effective teaching and successful learning are vital to the academic mission of the University. Commitment to our teaching and learning mission needs to be made visible, through recognition of and rewarding teaching and learning excellence, through public displays celebrating learning and teaching, through participation in national teaching and learning societies, and through investment in improving teaching and learning. Recognition and rewards, celebration of success, and investment in improving teaching and learning needs to occur at department, college and University-wide levels. College Review Committees can take steps to systematically recognize and reward excellence in teaching, the University Review Committee can review the Standards for Tenure and Promotion to ensure that they adequately reflect teaching requirements and roles, academic units can make investments in supporting innovation in teaching, and the entire university community can applaud demonstrations of success. These affirmations of the value of teaching and learning need to be embraced and endorsed by students, staff, faculty and senior administrators alike.

6. **ENGAGE STUDENTS IN CONSULTATION ABOUT THEIR EXPERIENCE.** This Foundational Document attempts to systematically record the impressions and evaluations of students about their teaching and learning experience at the University of Saskatchewan. It is essential that this not be an episode in time, but an ongoing conversation, with a wide variety of students and with regular feedback opportunities. Further, from the research conducted in the development of this Foundational Document we know that features of institutions which foster student engagement and persistence demonstrate an unshakeable focus on student learning, clearly marked pathways to student success, an improvement oriented ethos, and shared responsibility for educational quality and student success.[27] As a starting point, we must:

   - ***Ensure regular on-going and systematic consultation with students and visible outcomes from these consultations.*** There are three interrelated needs in connection with ensuring that student voices and student interests are present in shaping teaching and learning. First, students need to be present and visible as is now frequently the case on many university-level

[27] Kuh, G, Kinzie, J., Whitt, E. & Associates, (2005). *Student Success in College: Creating Conditions that Matter*. San Francisco: John Wiley & Sons. In a study of 20 universities involved in the Documenting Effective Educational Practice (DEEP) project, six shared institutional features were identified to foster student engagement and persistence. In addition to those mentioned in the text, these included a 'living' mission and 'lived' educational philosophy and environments adapted for educational richness.

and departmental committees. Second, student input, student reactions, and evidence about student experiences needs to be solicited regularly at all levels. Listening to student representatives, conducting surveys and student evaluations of teaching, and holding focus groups or other meetings are all aspects of collecting necessary views and information. But third, the impact of this information on subsequent decisions needs to be documented particularly when it comes to teaching evaluations. Because the time of many students on campus is comparatively brief, they will not often be able to see directly how their own input has changed a program or an educational strategy. This makes it all the more important for departments, colleges, and university leaders to document how the positions they take have been influenced by past student input. Creating a narrative of student involvement is part of creating an inclusive campus community.

VII. Next Steps

Teaching and learning are high priorities of the University of Saskatchewan. This fact is evidenced by what we have done, what we are currently doing, and what we will do over the next few years. The development of this Foundational Document has already informed the *Second Integrated Plan* as well as activity in colleges, departments and units in small but meaningful changes in our University. It will continue to do so.

As indicated in the preceding pages, the University of Saskatchewan has made a number of key commitments to change and improve the teaching and learning environment, and we have allocated new resources to achieve our goals. Significant changes include the establishment of the University Learning Centre, the creation of an Undergraduate Forum, and the establishment of Student Central. Faculty members have been doing a great deal to introduce innovative new practices in courses, to evaluate and improve teaching and course design, and to ensure quality education through ongoing redevelopment of courses and programs.

As a university, we need to take this activity to a higher level: to build inquiry-based learning, experiential learning, and other quality approaches systematically into our *programs* in ways that will distinguish undergraduate learning at the University of Saskatchewan. The focus needs to shift from individual efforts by individual faculty to broad, shared, and defining approaches across and between programs. This also means a shift from organizational structures providing general, central support services to *leadership* structures and priorities for curricular change. Critically, the connection between learning and discovery needs to be more prominent and the skills which we want students to demonstrate upon graduation need to be articulated. Resources will need to be allocated to support these new priorities; the Integrated Planning process provides the opportunity to do so.

New ideas about the importance of teaching and learning have informed the development of the University's *Second Integrated Plan* as well as the plans of colleges and administrative units, and part of the implementation of the ideas outlined in this document is to be found in those plans. Now that the Plan is approved, the University's focus is shifting towards implementation. While a broad-scale discussion on major elements associated with this Foundational Document will need to occur, it is essential that implementation begin under the leadership of the new Vice-Provost Teaching and Learning.

The University of Saskatchewan is building from established strength in undergraduate and graduate education as evidenced through Systematic Program Review and the surveys that have been completed over the past seven years. This Foundational Document asks faculty and the University to

do what they have always done, to rethink and improve university learning in light of new knowledge and changing needs of students and society. It asks students to continue to help guide our efforts through participation in surveys, programs, and evaluations of all types. Collectively, not just individually, we need to consider new approaches and ideas, to identify principles and outcomes, to support and enhance existing activity and effort: all of this to create greater impact and a more unified approach towards teaching and learning across the campus. If teaching and learning are to take a more prominent place in our thinking and actions, we are obliged to ensure that what we are currently doing meets the standard and expectations of students in the 21st century. We owe them nothing less.

Drafted by Pauline Melis, Director of Institutional Planning, with the assistance of:
Ernie Barber, Vice-Provost Teaching and Learning
Brett Fairbairn, Provost and Vice-President Academic
Michael Atkinson, Provost and Vice-President Academic
Jim Greer, Director, University Learning Centre and staff in the Gwenna Moss Centre for Teaching Effectiveness
Bob Tyler, past Chair, Teaching and Learning Committee of Council

APPENDIX C

MATERIALS FOR RECRUITMENT

C-1 Information Letter for Participants

APPENDIX C

INFORMATION FOR PARTICPANTS

STUDY SUMMARY

I am conducting research on active learning in the undergraduate university classroom as part of my PhD requirements in Educational Administration. I have a keen interest in instruction and want to find out how other instructors feel about using active learning with undergraduate students. For the purposes of this study, "active learning" includes those activities that students might be asked to do in class that encourage collaboration, discussion, critical and creative thinking, and reflection.

The study specifically addresses:

- faculty members' perceptions of using active learning as a teaching and learning strategy;
- the perceived personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms experienced by these faculty members;
- the perceived organizational driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms experienced by these faculty members; and
- the perceived interactions of these forces.

Up to 16 participants, at two separate half day sessions spaced approximately four weeks apart, will engage in pair interviews, complete a survey, respond to an interest inventory, develop a force field analysis chart individually and in pairs, and create reflective questions about decisions about teaching. During the four weeks between the half day sessions, as a participant you will respond electronically to these reflective questions. During the final week you will participate in a final interview with me. In total, I estimate that participant involvement will amount to the equivalent of approximately three half days.

This study is significant in two ways. It will provide insight into why faculty change instructional practices and what their reasons are for doing so; teaching occurs in many settings and this study may give ideas to others about changing instructional practices. Secondly, this study will contribute to the understanding of what drives and restricts change in the unique setting of at least one post-secondary institution. The driving and restraining forces identified in this study may help others strategically plan to minimize the barriers and maximize the driving forces when encouraging change in other organizations.

By being involved in this study you will have the opportunity to discuss teaching with faculty members from others colleges who also share an interest in teaching.

The first half day session is scheduled for the week of March 5th. If you have any questions, please contact me at either 343 8309 or sdm746@mail.usask.ca or Dr. Keith Walker at 966 7623.

Sheryl Mills, PhD Candidate, Educational Administration, University of Saskatchewan

APPENDIX D

Materials for Participants

D-1 Consent form

D-2 Attachment to consent form

D-3 Data/transcript release form

APPENDIX D-1

CONSENT FORM

Researcher: Sheryl Mills, Doctoral Candidate, University of Saskatchewan
Advisor: Dr. Keith Walker, University of Saskatchewan

The purpose of this research is to study the stories and perceptions of faculty who incorporate active learning in their undergraduate classes.

Consent to Participate in the Study

1. My participation in this study is voluntary and I understand that I am free to withdraw at any time.

2. I understand that I will have an opportunity to review the summaries and interpretations of data collected from me in order to check and enhance the accuracy. Changes to data I have contributed will be made on my request.

3. I understand that confidentiality will be protected through the use of pseudonyms in written reports and summaries, and because we will be in focus group settings, we will all be asked to only quote ourselves about the study to maintain confidentiality. I understand the importance of this and agree to only quote myself about the study.

4. I understand that the information collected during this study will be used for the stated research purposes of the researcher's dissertation, related publications, and possible presentations; the confidentiality of the research data with respect to other purposes will be strictly maintained.

5. I understand that only the researcher, her advisors, and the pertinent participants* will have access to the data generated from this study. All data will be kept in a secure place by the researcher and access will be controlled by her. (* only the individual that contributed the data may have access upon request to the data they have personally provided, but not to data provided by other individuals.)

As a participant in this study, I acknowledge that I have been fully informed of these guidelines and that I have agreed voluntarily to participate under these conditions.

Participant:_____

Researcher: _____

Witness: _____

Date: _____

You may contact the researcher or the advisors at any time for any reason pertaining to this study.

Sheryl Mills
Educational Administration
343-8309

Keith Walker, PhD
Educational Administration
966-7623

APPENDIX D-2

ATTACHMENT TO CONSENT FORM

STUDY INFORMATION

I am conducting research on active learning in the undergraduate university classrooms as part of my PhD dissertation through the Department of Educational Administration, University of Saskatchewan. I have a keen interest in instruction and want to learn more about the experiences of other instructors using active learning with undergraduate students. For the purposes of this study, "active learning" includes those activities that students might be asked to do in class that encourage collaboration, discussion, critical and creative thinking, and reflection.

The study specifically addresses:

- faculty members' perceptions on the use of active learning as a teaching and learning strategy;
- the perceived and experienced **personal** driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms;
- the perceived and experienced **organizational** driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms; and
- the perceived interactions of these personal and organizational forces.

On two separate half day sessions spaced approximately four weeks apart, up to 16 participants will engage in paired interviews, complete a survey, respond to an interest inventory, develop a force field analysis chart individually and in pairs, and create reflective questions about teaching decisions. During the four weeks between the two half day sessions, participants will be invited to respond electronically to these reflective questions. During the final week instructors will participate in a final interview with me. In total, I estimate that participant involvement will amount to the equivalent of approximately three half days.

This study is important in at least two ways. First, the study will provide insight into why faculty change instructional practices and what their reasons are for doing so. Teaching occurs in many settings and this study may provide ideas to others about changing instructional practices. Second, this study will contribute to our understanding of what drives and restricts change in this unique post-secondary setting. Perhaps identifying these driving and restraining forces will help others to strategically plan around or through the barriers and maximize the driving forces.

Through your involvement in this study you will have the opportunity to discuss teaching with faculty members from others colleges who also share an interest in teaching.

The first half day session is scheduled for the week of March 19th. If you have any questions, please contact me at either 343-8309 or sheryl.mills@gmail.com or Dr. Keith Walker at 966- 7623.

Sheryl Mills, PhD Candidate, Educational Administration, University of Saskatchewan

APPENDIX D-3

DATA/TRANSCRIPT RELEASE FORM

I,_____, have reviewed the quotes attributed to me and have been provided with the opportunity to add, alter, and delete information. I acknowledge that the quotes accurately reflect what I said/wrote. I hereby authorize the release of this transcript to Sheryl Mills, the researcher in this study to be used in the manner described in the consent form. I have received a copy of this Data/Transcript Release Form for my own records.

_____	_____
Name of Participant	Date
_____	_____
Signature of Participant	Signature of researcher

NOTE: No direct attributable quotes were used in this document.

APPENDIX E

Materials used with Participants:

E-1 Agenda

E-2 Surveys

E-3 Interview Questions

E-4 Interest Inventory

E-5 Force Field Analysis

APPENDIX E-1

AGENDAS

Agenda-- Session 1

Session 1 – the week of March 26, 2007
Session 2 – the week of April 23, 2007

(5 min.) Welcome

(10 min.) The Study and your part...

(10 min.) Introductions
- First name
- Classes you teach

(10 min.) Surveys and Superheroes

(15 min.) Paired Interviews
- Personal reflection with the questions
- Interviewing and being interviewed (audio-taped)

(15 min.) Success Stories (large group)

(5 min.) Interest Inventory

(25 min.) Force Field Analysis
- Individual
- Small groups

(15 min.) Reflective Questions
- Developing the questions (small groups and then large group)
- Practicalities of receiving and responding to the questions daily

(5 min.) Wrap-up and session evaluation

Agenda-- Session 2

Session 1 – the week of March 26, 2007
Session 2 – the week of April 23, 2007

Welcome

A Review of the Study

Success Stories -- (large group)

Appreciative Inquiry Interviews

- Personal reflection with the questions
- Interviewing and being interviewed (key points noted)

Force Field Analysis

- Individual
- Small groups
- Large group

Wrap-up

APPENDIX E-2

SURVEY

(In order to identify and match these data, please give the name of a superhero.)
Introduction: This survey will take approximately 15 minutes to complete. Thank you in advance for providing valuable information about the current state of faculty interest in teaching for the purposes of this study. All responses will be kept anonymous and in confidence.

SECTION A
Please complete the following:

1. Age

< 29 30-34 35-39 40-44 45-49 50-54
55-59 60-64 > 65

2. Sex Male Female

3. Total years experience as a faculty member at this university _____
Total years experience as a faculty member at other universities _____

4. College

Agriculture	Arts & Science	Commerce	Dentistry
Education	Engineering	Kinesiology	Law
Medicine	Nursing	Pharmacy & Nutrition	
Veterinary Medicine		STM	

5. Please indicate, on each continuum, the approximate amount of time in the past year you spent engaged in each of the following aspects of the academic role to total 100%:

Research/Writing 0%--------20%---------40%---------60%--------80%--------100%

Teaching 0%--------20%---------40%---------60%--------80%--------100%

Service 0%--------20%---------40%---------60%--------80%--------100%

Administration 0%--------20%---------40%---------60%--------80%--------100%

6. Please indicate on each scale from 0 to 5 (**0 being "none whatsoever" and 5 being "extremely passionate about"**) the *interest* you have in each of the following aspects of your academic role:

Research/Writing 0----------1----------2----------3----------4----------5

Teaching 0----------1----------2----------3----------4----------5

Service 0----------1----------2----------3----------4----------5

Administration 0----------1----------2----------3----------4----------5

How passionate are you about your main academic area?

0----------1----------2----------3----------4----------5

SECTION B

Please review the following statements and indicate for each one if you strongly disagree, disagree, agree or strongly agree. If you don't know or don't have an opinion please circle *Don't Know*.

1. Making learning more active for students has a relative advantage over other ideas about teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

2. Making learning more active for students has a relative advantage over the current situation.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

3. Including more active learning is compatible with the existing organizational values.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

4. Including more active learning is compatible with past experiences.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

5. Including more active learning is compatible with the needs of the students.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

6. Active learning is easy to incorporate in the university classroom.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

7. Active learning can be tried in small ways.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

8. Active learning can be modified as needed.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

9. Other faculty members can see the results of implementing active learning.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

SECTION C

The purpose of this portion of the questionnaire, an adapted form of the Concerns-Based Adoption Model (C-BAM) is to determine what people who are incorporating active learning strategies in their teaching (or are thinking about incorporating active learning strategies in their teaching) are concerned about at various times of the innovation adoption process. Please respond to each item in terms of your present concerns about your involvement or potential involvement with **including active learning in your teaching.**

1. I am concerned about student attitudes towards including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

2. I know of some other approaches that might work better than the changes I am making by including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

3**. I am concerned about not having enough time to organize myself each day to include more active learning in my teaching.**

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

4. I would like to help other faculty with including more active learning in their teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

5. I have very limited knowledge about including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

6. I would like to know the effect of including more active learning in my teaching on my professional status.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

7. I am concerned about conflict between my interest in including more active learning in my teaching and my other responsibilities.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

8. I am concerned about revising my use of including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

9. I would like to develop working relationships with faculty members in my department and in other colleges and universities about including more active learning in their teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

10. I am concerned about how including more active learning in my teaching affects students.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

11. I am not concerned about including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

12. I would like to know how to make decisions about including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

13. I would like to discuss the possibility of including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

14. I would like to know what resources are available if we decide to include more active learning in our teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

15. I am not concerned about my ability to manage all that including more active learning in my teaching requires.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

16. I would like to know how my teaching or administration is supposed to change if I am including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

17. I would like to familiarize other departments or persons with the progress of including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

18. I am concerned about evaluating any impact on students in relation to including more active learning in my teaching

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

19. I would like to revise my teaching to include more active learning in my teaching as an instructional approach.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

20. I am completely occupied with other things besides including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

21. I would like to modify our use of including more active learning in our teaching based on the experiences of our students.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

22. Although I don't know about including more active learning in my teaching, I am concerned about things in the area.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

23. I would like to excite my students about their part in active learning.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

24. I am concerned about the time spent working with nonacademic problems related to including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

25. I would like to know how including more active learning in my teaching will require attention in the immediate future.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

26. I would like to coordinate my effort with others to maximize the effects of including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

27. I would like to have more information on time and energy commitments required by including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

28. I would like to know what other faculty are doing about including more active learning in their teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

29. I am not interested in learning about including more active learning in my teaching at this time.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

30. I would like to determine how to supplement, enhance, or replace active learning.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

31. I would like to use feedback from students to make changes to including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

32. I would like to know how my role will change when I am including more active learning in my teaching.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

33. Coordination of tasks and people in relation to including more active learning in my teaching is taking too much of my time.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

34. I would like to know how including more active learning in my teaching is better than what we have now.

Strongly Disagree------Disagree ------ Agree --------Strongly Agree *Don't Know*

SECTION D

Now that you have completed the survey, are there are general comments you would like to add?

Thank you for taking the time to complete this survey.

APPENDIX E-3

INTERVIEW QUESTIONS

Paired Interviews (Session 2)

Please relate a story of a personal teaching experience that inspired you to continue with active learning in your undergraduate teaching. Please give as much detail as possible.

What brings you joy in your teaching?

Please relate a "success" story about your teaching.

Individual Interview Questions:

When did you begin adding active learning to your teaching?

What are some activities you do in lectures to engage students?

Please describe the teaching you do and the courses you teach.

How long have you taught these courses?

What do you enjoy most about the courses you teach?

What is it that you value most about the interactions you have with students?

Please tell a "success" experience you have had teaching.

What do you feel has inspired you most to make changes in your teaching?

What factors have had a dampening effect on your interest in teaching?

How do your teaching and research late?

What do you feel is the importance of teaching in your department?

at the University? in the international academic field?

If you had advice to give to a colleague about teaching what would that advice be?

What are you learning about now that applies to your teaching?

APPENDIX E-4

INTEREST INVENTORY

PART A: Within the tradition of lecture-based classes, active learning strategies engage students in learning and processing the content of a course while enhancing the development of interpersonal, communication and problem-solving skills. There are a wide variety of active learning strategies that can be incorporated depending on the objectives for the course, the needs of the students, and instructor preferences. For the purposes of this study "active learning strategies" are those activities that students are asked to do in class that encourage collaboration, discussion, critical and creative thinking, and reflection.

USE THE FOLLOWING SCALE TO INDICATE HOW FREQUENTLY YOU HAVE INCORPORATED EACH OF THE FOLLOWING INTO YOUR TEACHING IN THE LAST 2 YEARS:

0 --not at all, 1--rarely, 2--occasionally, 3--frequently, and 4—regularly

_____ Simulations

_____ Demonstrations

_____ Debates

_____ Role play

_____ Small group discussions

_____ Problem solving/PBL

_____ Case studies

_____ Games

_____ Creating visual representations & models

_____ Research & presentations

_____ Brainstorming

_____ Experiments

_____ Structured Controversy

_____ Concept Mapping

_____ Jigsaws

_____ Journaling

_____ In-class work teams

_____ Action Research

Other

_____

Please put a * beside those strategies above that you would like to know more about.

PART B: The purpose of faculty development, in general, is to help us keep current with new trends, to learn new skills, and to practice and refine existing skills. It consists of those activities and initiatives that support professional growth and change.

USE THE FOLLOWING SCALE TO INDICATE THE EXTENT TO WHICH YOU HAVE PARTICIPATED IN THE FOLLOWING TYPES OF FACULTY DEVELOPMENT ABOUT TEACHING IN THE PAST 2 YEARS EITHER AS A PARTICIPANT OR A PRESENTER:
0 --not at all, 1--rarely, 2--occasionally, 3--frequently, and 4—regularly

_____ Workshops (participant, presenter)

_____ Lecture/presentation/conference (participant, presenter)

_____ Professional reading in the area (participant, presenter)

_____ Study groups (participant, presenter)

_____ Peer consultation (participant, presenter)

_____ Peer coaching (participant, presenter)

_____ Instructional coaching (participant, presenter)

_____ Mentoring (participant, presenter)

_____ Communities of Practice (participant, presenter)

USE THE FOLLOWING SCALE TO INDICATE HOW EFFECTIVE HAVE EACH OF THESE FORMS OF FACULTY DEVELOPMENT ENHANCED YOUR TEACHING PRACTICES:

0-not at all, 1-somewhat, 2-moderately, 3-considerably, 4-to a great extent

_____ Workshops (participant, presenter)

_____ Lecture/presentation/conference (participant, presenter)

_____ Professional reading in the area (participant, presenter)

_____ Study groups (participant, presenter)

_____ Peer consultation (participant, presenter)

_____ Peer coaching (participant, presenter)

_____ Instructional coaching (participant, presenter)

_____ Mentoring (participant, presenter)

_____ Communities of Practice (participant, presenter)

What other forms of faculty development have you participated in or facilitated and how effective were they for you in enhancing your teaching practice?

APPENDIX E-5

FORCE FIELD ANALYSIS

PART A

USE THE FOLLOWING SCALE TO INDICATE HOW EACH OF THE FOLLOWING MOTIVATES YOU TO INCLUDE MORE ACTIVE LEARNING IN YOUR TEACHING:

0-not at all, 1-somewhat, 2-moderately, 3-considerably, and 4-to a great extent

Publishing the results of a survey of recent graduates that reveals what they thought of their education
0----------1----------2----------3----------4

A personal desire to improve the quality of education for students
0----------1----------2----------3----------4

Intrinsic motivation
0----------1----------2----------3----------4

A greater emphasis on teaching in all appointment and promotion proceedings
0----------1----------2----------3----------4

Government agencies and foundations making more money available for research and experimentation on ways to improve teaching effectiveness
0----------1----------2----------3----------4

Doing more to determine how much students have learned in their courses
0----------1----------2----------3----------4

Requiring student evaluations for all courses and sections
0----------1----------2----------3----------4

Providing opportunities for instructors to receive assistance to improve their teaching
0----------1----------2----------3----------4

Offering small grants to faculty members who wish to try new methods of instruction with the stipulation that each project be carefully evaluated and publicizing the results widely
0----------1----------2----------3----------4

Establishing prizes and other forms of recognition for good teaching
0----------1----------2----------3----------4

Other:

PART B

USE THE FOLLOWING SCALE TO INDICATE HOW MUCH EACH OF THE FOLLOWING DETRACTS FROM YOUR ATTENTION TO TEACHING:

0-not at all, 1-somewhat, 2-moderately, 3-considerably, 4-to a great extent

Personal interest in other areas
0----------1----------2----------3----------4

Professional and personal autonomy in the role of faculty member
0----------1----------2----------3----------4

Specialization of faculty
0----------1----------2----------3----------4

Isolation and fragmented communication among faculty members given the great degree of autonomy and specialization
0----------1----------2----------3----------4

Competition for resources
0----------1----------2----------3----------4

Emphasis on research and writing
0----------1----------2----------3----------4

Conflicting messages given through the university reward structure
0----------1----------2----------3----------4

Being a teacher has not been highly regarded or rewarded organizationally
0----------1----------2----------3----------4

Highly competitive nature of the promotion system
0----------1----------2----------3----------4

Other:

APPENDIX F

ETHICS APPROVAL

F-1 Application for Approval of Research Protocol

F-2 Approval of Research Protocol

F-3 Ethics Certificate

F-4 Audit Report

APPENDIX F-1
Application for Approval of Research Protocol

1. Supervisor: Dr. Keith Walker, Department of Educational Administration, College of Education, University of Saskatchewan
1a) Student: Sheryl Mills (Doctoral Candidate)
1b) Anticipated start date: September 18, 2006
Expected end date: October 23, 2006

2. Title of Study: ***Stories and perceptions of faculty who incorporate active learning in undergraduate classes***

3. Abstract: At the post-secondary level, faculty members are being encouraged to adopt more active learning in their lectures to better meet the learning needs of students; by engaging students in their own learning, active learning increases retention (Wright & O'Neil, 1994; Terenzini & Pascarella, 1994; Russell, Hendricson, & Herbert, 1984; Biggs, 1999; Nelson, 2001; Zull, 2002; Panitz, 2003). This mixed method study has applicability at the university/post-secondary education levels and is guided by the general question of *what are the stories and perceptions of faculty who incorporate active learning in undergraduate classes?* More specifically the research addresses:

1. faculty members' perceptions of using active learning as a teaching and learning strategy;
2. the perceived personal driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms experienced by these faculty members;
3. the perceived organizational driving and restraining forces acting on the actualization of active learning in undergraduate university classrooms experienced by these faculty members; and
4. the perceived interactions of these forces.

4. Funding: Graduate student will fund the study.
5. Expertise: (None of these criteria apply to this study.)
6. Conflict of Interest: No conflict of interest is expected in this study.
7. Participants: Volunteer participants, faculty members at the University of Saskatchewan as defined by the University of Saskatchewan Faculty Association, for the study will be garnered in three ways:
1) There will be an advertisement about the study in *Bridges*;
2) I will contact award winning teachers and nominees from the past five years (names are published publicly); and
3) An advertisement email will be sent to deans and department heads with a request to forward the advertisement on all tenured faculty members.
The group will ideally consist of from 8 – 16 volunteers and a snowballing technique may be used if the initial number of participants is less than that number.

7a) Recruitment Material: Please see Appendix A for the letter that will be sent to the deans of all colleges on the University of Saskatchewan campus and the letter of invitation to potential participants [Appendix B].

8. Consent: Faculty members will be informed that participation is entirely voluntary and that it is their right to withdraw from the study at any time. Participants will be informed that they may withdraw at any time although a commitment to be involved for the duration of the study and the importance of continued involvement will be stressed prior to an individual becoming involved. Participants can contact the researcher with any concerns. [See Appendix B for the consent form]

8.a) Alternative consent protocols are not necessary in this study.

8.b) No permission is required from another organization to proceed with the research.

8.c) No children under the age of 18 are involved in this study.

8.d) Participants are not in a dependent relationship to the researcher.

8.e) All participants will be able to give consent/assent.

8.f) Participants will not be observed without their knowledge. The participants are not a pre-formed group or a captive group.

8.g) The group of participants is not a pre-formed group of individuals but rather, is a group of individuals who come together for the purpose of this study.

9. Methods/ Procedures: From mid-September to mid-October 2006, participants, at two separate half day sessions spaced four weeks apart, will engage in pair interviews, complete a survey, respond to an interest inventory, develop a force field analysis chart individually and in pairs, and create reflective questions about decisions they make about their teaching. During the four weeks between the half day sessions, participants will respond electronically to the reflective questions daily. During the final week participants in pairs will participate in a final interview. [All materials that will be used are presented in Appendix C.]

10. Storage of Data: Dr. Keith Walker, my research supervisor, will ensure that data is stored in a secure location for a minimum of five years after the completion of the study. As data are collected, these will be stored in a locked and secure area. Data will include audio-taped interviews, the transcriptions of these interviews, completed surveys and interest inventories, flip chart materials, force field charts and session notes from half day sessions, and electronic reflections which will be printed and stored.

11. Dissemination of Results: The data collected will be used in my doctoral dissertation, journal articles, and conference presentations. A summary will be available to participants and the dissertation will also be available through the library system. The raw data will not be made generally available other than to members of my advisory committee.

12. Risk, Benefits, and Deception: Participants will benefit by being involved in this study with its focus on instruction in undergraduate classes by meeting with other faculty members from other colleges on The University of Saskatchewan campus who share this interest. Of potential benefit to the wider educational community is the information and further understanding the study will unearth about the experiences of instructors who are keenly interested in instruction, and the driving and restraining forces they have experienced personally, organizationally, and with active learning as an innovation in particular.

12. a-b) I am not studying a vulnerable population or a captive or dependent population.

12. c) There is no power relationship between the researcher and the participants.
12. d) Although some specific information shared in the group setting or in the paired interviews in the data file may be linked with specific participants by other participants, pseudonyms will be used to protect the participants' anonymity in the general population. Participants will be asked to only quote themselves when discussing the study but this is out of the control of the researcher.
12. e) Third parties will not be exposed to a loss of confidentiality or anonymity.
12. f) I will be using audio-tapes.
12. g) Participants will not be actively deceived or misled.
12. h) The research is not likely to cause any degree of discomfort, fatigue, or stress.
12. i) I will not ask intentionally uncomfortable, disquieting, personal, or sensitive questions.
12. j) It is highly unlikely that the procedures will induce embarrassment, humiliation, lowered self-esteem, guilt, conflict, anger, distress, or any other negative emotional state.
12. k) There is no anticipated likelihood of any social risk such as loss of privacy, reputation or status as all participants will be participating volitionally.
12. l) The research will not infringe on the rights of the participants.
12. m) The participants will not be receiving compensation of any sort other than the benefits associated with being in a group of individuals who share a keen interest in instruction in undergraduate classes.
12. n) I can think of no other possible harm that might come to the individuals volunteering to participate in this study.
13. Confidentiality: All participants in the study will remain anonymous outside of the group. They will be known to the deans of their colleges. At no point will their identities be revealed outside of the group. Participants will know each other in the group and will be asked to only quote themselves outside of the group and to not take the information from the group into a wider venue. The consent form, which clearly states how the group was formed, will ask each participant to acknowledge his/her responsibility and agreement to protect the integrity and confidentiality of what others in the group have said during the group sessions. With these careful instructions to the group, there is no risk to participants in any way. All information regarding participants will be information that the participants themselves have provided and given permission to use. Identities of all participants will be protected and anonymity assured. No audio taping will be used without permission. Participants will be fully informed of the purpose of the research. The research procedures should cause no discomfort, fatigue, or stress.
14. Data/Transcript Release: It is possible, although unlikely, that participants will be identifiable by their direct words. Participants will have an opportunity to review the quotations that will appear in written or oral presentations of the material, and grant permission to the researcher to include those quotations. The researcher will also make an effort to filter out any expressions that might identify participants. This permission will be recorded in writing on a transcript release form. [Appendix D]
15. Debriefing and Feedback: Debriefing and discussion of the process of the study will occur at the final interview with participants. At this time participants will be informed as to how they can access the results of the research.

16. Required Signatures:

Sheryl Mills (Doctoral Candidate)

_____

Dr. Keith Walker (Supervisor)

_____

Dr. Sheila Carr-Stewart (Department Head)

_____

17. Required Contact Information:

Sheryl Mills, Ph.D. Candidate,
Department of Educational Administration, College of Education, University of Saskatchewan

Telephone:	306 343 8309
Email:	spiritsong7@yahoo.ca
Home Address:	1502 Cairns Avenue, Saskatoon, SK S7H 2H6

Department of Educational Administration

ACCEPTANCE OF DISSERTATION PROPOSAL

Sheryl	Mills	752399
FName	LName	Student#

satisfactorily completed Preliminary Oral Examination of thesis topic titled:

Active Learning: The Stories and Perceptions of Faculty in an Undergraduate University

on September 15, 2006

Chair

V. Hajnal, Associate Dean, College of Education

Advisor

K. Walker, Educational Administration

Committee Members

C. Reynolds, Dean, College of Education

L. Sackney, Educational Administration

Cognate Member

M. D'Eon, College of Medicine

Submitted to College of Graduate Studies on: September 15, 2006

Sheila Carr-Stewart
Department Head

UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics Board (Beh-REB)

24-Oct-2006

Certificate of Approval

PRINCIPAL INVESTIGATOR	DEPARTMENT	BEH#
Keith D. Walker	Educational Administration	06-227

STUDENT RESEARCHERS
Mills, Sheryl

INSTITUTION(S) WHERE RESEARCH WILL BE CONDUCTED (STUDY SITE)
University of Saskatchewan

Saskatoon SK

SPONSOR
UNFUNDED

TITLE
Stories and perceptions of faculty who incorporate active learning in undergraduate classes

CURRENT APPROVAL DATE	EXPIRY DATE
24-Oct-2006	23-Oct-2007

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: *http://www.usask.ca/research/ethical.shtml*

APPROVED

Dr. John Rigby, Chair
Behavioural Research Ethics Board
University of Saskatchewan

Please send all correspondence to:

Ethics Office
University of Saskatchewan
Room 306 Kirk Hall, 117 Science Place
Saskatoon SK S7N 5C8
Telephone: (306) 966-2084 Fax: (306) 966-2069

UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics Board (Beh-REB)

Certificate of Re-Approval

PRINCIPAL INVESTIGATOR	DEPARTMENT	Beh #
Keith D. Walker	Educational Administration	06-227

INSTITUTION (S) WHERE RESEARCH WILL BE CARRIED OUT

University of Saskatchewan
Saskatoon SK

STUDENT RESEARCHER(S)

Sheryl Mills

SPONSORING AGENCIES

UNFUNDED

TITLE:

Stories and perceptions of faculty who incorporate active learning in undergraduate classes

RE-APPROVED ON	EXPIRY DATE
21-Oct-2008	20-Oct-2009

Full Board Meeting ☐

Delegated Review ✔

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

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In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: http://www.usask.ca/research/ethics_review/

John Rigby, Chair
University of Saskatchewan
Behavioural Research Ethics Board

Please send all correspondence to:

Ethics Office
University of Saskatchewan
Room 302 Kirk Hall, 117 Science Place
Saskatoon, SK S7N 5C8
Phone: (306) 966-2975 Fax: (306) 966-2069

Letter of Attestation

This letter of attestation is in relation to the inquiry audit of the Ph.D. dissertation written by Sheryl D. Mills entitled "Stories and perceptions of faculty who incorporate active learning in undergraduate classes."

The purpose of this study was to determine driving and restraining forces acting on the implementation of active learning in undergraduate classes as revealed through the stories and perceptions of selected faculty, and to use force field analyses to examine and organize these stories and perceptions in relation to (a) context, (b) the person and (c) the innovation, and to explore the possible interactions among the forces identified in these categories.

The Audit Procedure--Verification and Accuracy of Transcripts and Tapes

1. Consent forms
There are 9 consent forms which:

a) list participants of the study and
b) are signed by them.

2. Selection of Samples for Verification and Accuracy of Tapes to Transcripts:

a) Procedure and Observations for Tapes to Transcripts Tests:
There are 7 tapes, 5 concerning individual interviews. The names available for sampling, with good tapes, are seven. Three are chosen for sampling.

b) Accuracy of Quotations in Relation to Data Sources

All comparisons between tapes and transcripts were positive. The words/concepts discussed on the tapes were the words/concepts that appeared in transcripts.

3. Accuracy of Dissertation Chapter Four References to Transcripts:

There are 11 quote references in chapter 4 to the working papers. All are verified.

4. Inspection of Ethics Proposal and Certificate

I have reviewed the candidate's application for approval of Research Protocol and the ethics statement provided . The procedures used by researcher and the protocols followed in the research are consistent with this approval. An analysis of the data reduction and interpretation of data was not considered by this audit. It remains for the researcher to turn the materials above, over to the University for secure storage for a five-year period.

5. Summary

Despite minor omissions the transcripts and data sheets are accurate transcriptions of the taped interviews. The transcripts in the dissertation represent a faithful record of the taped interviews.

As a result of the audit, I as auditor, testify that the transcripts/data sheets which I have examined in relation to Sheryl D. Mill's dissertation are true and accurate.

Eric Campbell

Eric Campbell

Eric Campbell, B.Comm., M.B.A.(Queens) (retired member Institute of Internal Auditors and Association of College and University Auditors)

2008-12-12

APPENDIX G

DATA

APPENDIX G

DATA

APPENDIX G-1

Table G.1.

Survey Section B Summary

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
Making learning more active for students has a relative advantage over other ideas about teaching	0	0	3	4
Making learning more active for students has a relative advantage over the current situation	0	0	3	4
Including more active learning is compatible with the existing organizational values	0	2	3	2
Including more active learning is compatible with past experiences	0	2	5	0
Including more active learning is compatible with the needs of the students	0	0	2	5
Active learning is easy to incorporate in the university classroom	0	3	4	0

Active learning can be tried in small ways	0	0	2	5
Active learning can be modified as needed	0	1	4	2
Other faculty members can see the results of implementing active learning	0	4	3	0

APPENDIX G

DATA

APPENDIX G-2

Table G.2.

Survey Section C Summary

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
1) I am concerned about student attitudes towards including more active learning in my teaching	0	4 H,BB,DD M	3 GL1,2 CU	0	0
2) I know of some other approaches that might work better than the changes I am making by including more active learning in my teaching	0	3 GL1,DD M	3 H,BB CU	0	1 GL2
3) I am concerned about not having enough time to organize myself each day to include more active learning in my teaching	0	2 H,M	1 GL1	4 BB,GL2 CU,DD	0
4) I would like to help other faculty with including more active learning in their teaching	0	2 BB,M	5 H,GL1,2 CU,DD	0	0
5) I have very limited knowledge about including more active learning in my teaching	0	4 H,GL2 CU,DD	3 BB,GL1 H	0	0
6) I would like to know the effect of including more active learning in my teaching on my	1	2 CU,M	4 H,GL1,2 DD	0	0

professional status					
7) I am concerned about conflict between my interest in including more active learning in my teaching and my other responsibilities	0	2 GL1,DD	4 H,GL2 CU,M	1 BB	0
8) I am concerned about revising my use of including more active learning in my teaching	0	4 H,BB,GL2 M	2 GL1,DD	0	1 CU
9) I would like to develop working relationships with faculty members in my department and in other colleges and universities about including more active learning in their teaching	0	0	5 BB,GL2 CU,DD, M	2 H,GL1	0
10) I am concerned about how including more active learning in my teaching affects students	0	1 GL1	5 H,BB,CU DD,M	1 GL2	0
11) I am not concerned about including more active learning in my teaching	1 DD	2 H,M	2 GL2,CU	2 BB,GL1	0
12) I would like to know how to make decisions about including more active learning in my teaching	0	1 M	4 BB,GL1,2 CU	2 H,DD	0
13) I would like to discuss the possibility of including more active learning in my teaching	0	0	5 BB,GL1,2 CU,M	2 H,DD	0
14) I would like to know what resources are available if we	0	0	4 BB,GL1,2 CU	3 H,DD,M	0

decide to include more active learning in our teaching					
15) I am not concerned about my ability to manage all that including more active learning in my teaching requires	0	3 BB,GL1 CU	4 H,GL2 DD,M	0	0
16) I would like to know how my teaching or administration is supposed to change if I am including more active learning in my teaching	0	2 BB,M	3 GL1,2 DD	2 H,CU	0
17) I would like to familiarize other departments or persons with the progress of including more active learning in my teaching	0	2 BB M	5 H, GL1,2 CU,DD	0	0
18) I am concerned about evaluating any impact on students in relation to including more active learning in my teaching	0	1 BB	6 H,GL1,2 CU,DD,M	0	0
19) I would like to revise my teaching to include more active learning in my teaching as an instructional approach	0	0	4 H,BB,CU M	3 GL1,2,DD	0
20) I am completely occupied with other things besides including more active learning in my teaching	1 GL1	3 H,CU,M	2 BB,DD	1 GL2	0
21) I would like to modify our use of including more active learning in our	0	0	5 H,GL1,CU DD,M	2 BB,GL2	0

teaching based on the experiences of our students					
22) Although I don't know about including more active learning in my teaching, I am concerned about things in the area	0	1 CU	0	0	6 H,BB, GL1,2 DD,M
23) I would like to excite my students about their part in active learning	0	1 M	3 BB,CU,DD	3 H,GL1,2	0
24) I am concerned about the time spent working with nonacademic problems related to including more active learning in my teaching	0	3 GL2,CU M	3 H,GL1,DD	1 BB	0
25) I would like to know how including more active learning in my teaching will require attention in the immediate future	0	2 BB,M	4 H,GL1,CU DD	0	1 GL2
26) I would like to coordinate my effort with others to maximize the effects of including more active learning in my teaching	0	1 GL2	3 BB,CU,M	3 H,GL1,DD	0
27) I would like to have more information on time and energy commitments required by including more active learning in my teaching	0	2 CU,M	3 GL1,2,DD	2 HH,BB	0
28) I would like to know what other faculty are doing about including more active learning in	0	0	6 H,BB,GL1 GL2,CU M	1 DD	0

their teaching					
29) I am **not** interested in learning about including more active learning in my teaching at this time	3 GL1,DDM	4 H,BB,GL2CU	0	0	0
30) I would like to determine how to supplement, enhance, or replace active learning	0		5 GL1,2,CUDD,M	0	2 H,BB
31) I would like to use feedback from students to make changes to including more active learning in my teaching	0	0	5 H,GL2,CUDD, M	2 BB,GL1	0
32) I would like to know how my role will change when I am including more active learning in my teaching	0	2 BB,M	5 H,GL1,2CU,DD	0	0
33) Coordination of tasks and people in relation to including more active learning in my teaching is taking too much of my time	0	5 H,GL1,2CU,M	2 BB,DD	0	0
34) I would like to know how including more active learning in my teaching is better than what we have now	0	0	7 H,BB,GL1,GL2,CU,DD,M	0	0

APPENDIX G-3

Table G.3.

Interest Inventory Part A: Frequency of use of active learning strategies

(N=7)

Strategy	Frequency of Use	Interest
Debates	0	1
Jigsaws	1	1
Concept Mapping	3	5
Action Research	3	3
Structured Controversy	4	1
Role play	4	1
Games	5	1
Journaling	6	3
Brainstorming	8	0
Simulations	10	2
Create visual models	12	4
Experiments	13	1
Demonstrations	14	0
Discussions (groups)	15	1
Case studies	16	0
Problem solving/PBL	17	1
In-class work teams	17	1
Research & presentations	18	1

APPENDIX G-4

Table G.4.

Interest Inventory Part B: Participation and effectiveness of faculty development

Faculty Development	Frequency	Effectiveness out of 4
Communities of Practice	2	2
Study groups	2	1
Peer coaching	3	1.5
Instructional coaching	4	2.5
Mentoring	5	1.5
Professional reading	11	2.5
Peer consultation	11	2
Workshops	15	2.5
Conferences	15	2

APPENDIX G-5

Table G.5.

Summary of Individual Force Field Analysis Part A

Survey Item	Not at all	Somewhat	Moderately	Considerably	To a great extent
Publish the results of a survey of recent graduates that reveals what they thought of their education	3	2	0	0	1
A personal desire to improve the quality of education for students	0	0	0	3	5
Intrinsic motivation	0	0	0	4	2
A greater emphasis on teaching in all appointment and promotion proceedings	2	0	3	1	1
Make more money available for research and experimentation on ways to improve	1	1	3	1	1

teaching effectiveness					
Do more to determine how much students have learned in their courses	1	0	0	2	3
Require student evaluations for all courses and sections	1	2	0	0	3
Provide opportunities for instructors to receive assistance to improve their teaching	0	0	3	2	2
Small grants to faculty to try new methods of instruction; each project is evaluated. Results publicized.	0	1	0	3	3
Prizes and other forms of recognition for good teaching	1	3	1	0	2

APPENDIX G-6

Table G.6.

Summary of Individual Force Field Analysis Part B

Survey Item	Not-at all	Somewhat	Moderately	Considerably	Great extent
Personal interest in other areas	0	3	2	2	0
Professional and personal autonomy in the role of faculty member	4	1	1	0	1
Specialization of faculty	2	2	1	2	0
Isolation and fragmented communication among faculty members given the great degree of autonomy and specialization	1	0	3	1	2
Competition for resources	0	3	3	1	0
Emphasis on research and writing	1	0	2	3	1

Conflicting messages given through the university reward structure	0	1	1	1	3
Being a teacher has not been highly regarded or rewarded organizationally	0	2	1	3	1
Highly competitive nature of the promotion system	1	2	1	1	2

APPENDIX G-7

The Stories

Participants were given opportunities to share stories that were special to them in a variety of ways. In some cases the stories were shared several times in various settings. The purpose of the meetings and the one-on-one interviews was to provide a different opportunities and conditions for stories to be shared. The stories told in the interviews, the group meetings, and on the Interview Discussion Guide (completed by five participants) are grouped by themes. The focus is on the stories told rather than on the tellers of the stories. Although the stories are not direct quotations they are told in first-person. In all but one case the information shared in the interviews was congruent with stories and perceptions shared in the group meetings and on the forms. As the main purpose of the study was to identify driving and restraining forces that have an impact on the use of active learning in undergraduate classes, the stories shared by participants have been combined to construct an aggregate picture.

What Do You Love About Teaching?

"What do you love about teaching?" was one of the first questions I asked participants. The question was also asked on the *Interview Discussion Guide*. Participants generally indicated that it was about the genuine involvement and interest of the students in the class.

Story 1

I like planning and modeling for "ecstatic" experiential adventures into dangerous unknown "voids" of social "messes" learning; exploring can be an

endorphin rush. The joy of growth is inherently valuable, independent of application.

Story 2

Inspiring students, switching on "light bulbs" and interactions with students are what I like most in my teaching.

Story 3

I like being able to talk to students at a deeper level about a topic and knowing that students got interested in the class for the term and are thinking about ideas from the class

Story 4

I like the interaction with students and learning along with them. I also like relaying personal experiences.

Defining Moments

In our last group meeting, participants were asked to share what had been engaging for them in teaching and active learning, and what were the defining moments that turned them on to active learning. They tended to remember stories from their days as a student and wondered if indeed we teach as we are taught. The following stories were shared. Five people were able to attend. The stories were shared in this order:

The Starfish!

In a huge lecture theatre in my first year of university I was shown a starfish. I was really moved – transfixed! The way I saw the power of the beauty was a spiritual experience. I wanted to give others this experience of

total engagement. I want my students to have that profound feeling in my lectures.

Getting Soaked!

In one of my university classes a professor brought in a huge water pump to demonstrate the cardio-vascular system. He opened the valve and everyone got wet in the lecture theatre. We saw – and felt -- the power of the heart.

Fireworks!

I remember a lecture in chemistry when I was a student. Our professor had arranged – months or years in advance -- for an expert on fireworks to come into our class –to demonstrate fireworks. Things were exploding in class! He showed how to use chemistry for something real. And had some enthusiasm for it! You've got to be excited about what you teach...

The Pendulum...

A defining moment for me was when a TA pointed out how exciting a pendulum is. I thought he was crazy! But he kept asking us questions to get us to think deeper. We ended up making a special pendulum to carry out research. I love clocks to this day! He inspired curiosity with his enthusiasm.

Abstract and Real.

For me, it was a defining concept really. I was excited when my professors linked abstract concepts to real world events so that I could see the connection. This is what I try to do for my students too.

Getting Started with Active Learning

The following stories were shared by participants as to how they began including active learning in their own teaching. One participant did not have a triggering event as that individual did not use active learning.

Trigger 1

I was teaching a smaller class of a course that a colleague had developed that relied on using current resources and the Socratic Method. He insisted that I use this method and then sat in the back of the class to observe and ask questions! I knew then how students felt when they were put on the spot. I have been modifying and using this method ever since. (N19)

Trigger 2

I've always tried to make the magic and joy of learning apparent to my students even when I was teaching piano lessons as a teenager. (N22)

Trigger 3

I've always used active learning; it is foundational to the sciences. Perhaps the influence of my European education also had something to do with it. (N21)

Trigger 4

My third year in I started using active learning. I didn't have sort of a role model or a mentor that way because that really wasn't part of our culture at the time. It was just sort of something spontaneous. I knew that I had these other things that I could bring to my classroom and then I had to think about, so how could I incorporate that into my teaching and what would I want as a student? What things would I want in my hands that would make it easier for

me to follow along? Around the same time I attended a fall teaching institute and heard about semi-notes. It was an organic process as opposed to modeling a senior faculty member's teaching practices. I tried it out in one course and saw how it went and progressively added it across the courses that I taught. It worked out fine. (N9.1)

Trigger 5

A few things converged -- I was reading about active learning, I finally had control of the syllabus, and I recognized that my students were having trouble with estimating. I knew that the ability to estimate quickly would serve them well in their careers so I set them up to work in groups to help each other while I circulated. It worked very well! (N13)

Trigger 6

I used active learning right from the start in the 3rd year seminar-like small classes I was teaching. (N11)

Trigger 7

At the Learneds a number of years ago I attended a session given by an English professor discussing Henry James as an impressionist writer at the same time as the impressionist painters. The language he was using was similar to the language I was thinking about economics. Monet and James were painting/writing models of the process of abstraction. Eliminating much of the detail and focusing on the critical elements is very similar to the process that economists use...the ones that students say bear no resemblance to reality. That session sparked something in me that resulted in a lecture I give now ("Models, Metaphor and Monet"), and in using more active learning with my students to

help them see the connections between abstract theoretical concepts and reality. (N16)

Trigger 8

My first degree is a Bachelor of Physical Education. I went on to do a Masters' degree in Education and then a PhD. I am active learning! It suits me. You can't teach PhysEd without being active. I have brought that philosophy with me into the university setting. (N25)

Stories of Success

The following vignettes are drawn from stories of success participants shared in the group meetings and the interview. Participants indicated that they involved the students more in graduate classes but for the purposes of this study I have focused on the examples from the undergraduate classes.

There were some common elements in the success stories. There was often connection and direct applicability to the real world, students had choice in what they did and how they did it, groups were at least an option, and students often had the opportunity to present information to their peers.

Some activities happened outside of the designated class time (which was mostly reserved for lectures), some activities were designed to "hook" the students, and some had the students actively engaged in the content. Some vignettes illustrated that active learning was embedded in the structure of the course while others indicated that active learning was used to engage students in the lecture but not necessarily involve them in the processing of information in an active way.

Vignette 1

When I was "green" I taught a class that used a lot of active learning. That was eight years ago. Now I get students working together on-line outside of class. It's a lot of work to monitor their conversations.

Vignette 2

Students are active in the lab – that's the hands-on part of Science. In class I get them laughing and engaged in my lectures – I demonstrate a molecule by jumping up on the desk or getting students to count the digits in their names to show normal distribution curve.

Vignette 3

In the first class I invite students to introduce themselves to their neighbor -- but they don't have to if they don't want to; I don't like to impose my authority on them. After a couple of minutes I say, "Let's talk about the kinds of things you shared and the kinds of things you didn't share." I use this activity to illustrate concepts I'll be discussing in the lecture – the activity introduces the content.

Vignette 4

I start the class every year with a role playing exercise that divides the class into two – one half is a co-op and the other is a profit company – both providing the same product. Groups are asked to determine the price they are going to charge for this product. They have 20 minutes to come up with something. I've done this enough times that I know what their answers will be. This gets them talking and then I explain the concepts. There are seminal papers that outline 4 different theories on what the co-op should charge. Some groups

come up with the same outcome as the researchers. They don't even know what a co-op is at this point. They have an intuitive sense but sometimes they are way out with no ability to analyze it. Intuition is great but you can't rely on it all the time. How do you take that intuition and get them to back it with some structure? The very first day they can think about things intuitively – and then they come back to it with more information at a later date. The course gives them the logic to back up their intuition.

Vignette 5

I recognized that students had trouble with estimating – a skill they'll need in the workplace -- so I got them working in groups while I circulated in the room. Students got comfortable asking questions and the whole group got more engaged. It was a more satisfactory teaching experience for me and when I analyzed the results I found that I had taught something that the students found useful and many were successful.

The following vignettes are of group projects designed to have students teach content to their peers:

Vignette 6

A teaching highpoint came in my 200-level History class when my students worked together in groups and presented their research projects to the class. They had the freedom to choose the topics -- I provided ideas for how to think of topics but I didn't give out topics. The students also had the choice to work in groups or to work individually. This idea came about when the course went from a 6 credit unit course to a 3 credit union course so the 3-paper evaluation changed to one paper and the research project and presentation. I

was excited about the wide variety of the students' presentations. The students exceeded my expectations!

Vignette 7

I used group projects at the fourth year level. Using a clearly defined set of requirements, students in groups of four worked together to design a thing and present that design. It seems that the less involved the other faculty member and I were, the more engaged the students were. They really got into the project and designed something that exceeded expectations by far – in fact it is patentable! There were stunning moments! "Less is more" in terms of micromanaging the groups. When the students had freedom they were more creative and involved.

Vignette 8

Students chose a current article from ones I had gathered that were relevant in this field. They presented this to the class. I was excited about the presentations the students made; there were different levels of involvement and engagement of the students – some put more effort into the project than did others. The relevance of the material and the timeliness of this as content along with the link to the real world seemed to be appealing to them.

Vignette 9

After brainstorming possible topics, students chose a topic to work on in groups. They had clearly defined goals and the freedom to address those goals in ways of their choosing. I encouraged students to consider how they were going to present to the class group. Enthusiasm was high for this project. We invited people from outside the class to come and hear the presentations.

The next three vignettes illustrate how instructors have embedded active learning in the course design and structure.

Vignette 10

I've been using the Socratic Method for a good 20 years in my teaching. I'll never forget this one class…I was teaching a class of 400 students. One student asked a question and then another and another and then discussion took off for about five minutes. That doesn't happen often in large classes. They were really interested in this topic. (N19)

Vignette 11

At a fall teaching institute I learned about "semi-notes" to track video viewing. I used the method in one section initially and with positive feedback from senior colleagues I added it to my other sections as well.

Semi-notes are an empty outline that students fill in as they watch a video; they are viewing guides. After viewing the video and filling in the semi-notes individually, the students go into self-organized small groups for 15 minutes to compare notes. They phrase the information in conversational language that they might have over coffee with peers. In the large group we build the answers on the board together to create a common set of notes. This gives me the chance to correct any errors or misconceptions they might have and reintroduce the professional language. Exam essay questions are drawn from these notes. The in-class work is supported with trips into the field. I check their field notes which they then synthesize into a narrative.

The benefits: There is a high degree of personal meaning-making with opportunity for correction at every stage. There is a high degree of success for students.

Vignette 12

My kinesiology students work in groups to design and teach lessons to "real" kids. They are very enthusiastic about being "teachers" and meeting with these younger students. I'm blown away by the insights that arise from their experiences ("It's harder than it looks!"). It's so much more than I ever could have told them. I'm involving students at the course design level now. They are going to be working right in schools. This degree of experiential active learning benefits everyone – my students and the schools.

Inspiring Change

When asked "what inspires you to make changes in your teaching?" there was a theme of organic slow change in how participants' teaching evolved over the course of their careers. One participant felt that teaching was like an experiment and that over time he could see what worked and what was not so successful but the academic year is long and major changes take time to assess and adjust.

Inspiration 1

I'm never satisfied. I need stimulation. Improving my own competence in my teaching and course design is fun for me.

Inspiration 2

I make changes to my teaching because of student feedback and reading Physics Education literature. Although I am limited to 5 content changes of a minor nature in 1st year courses, I can make changes to how I teach.

Inspiration 3

I know that I need to pay special attention to get students to see connections between the theory and the "real world." I have tried some things that worked!

Inspiration 4

When I have the impression that I am not "teaching them" anything or that what I am teaching is not relevant to what students need, I make changes in my teaching.

APPENDIX G-8

DRIVING AND RESTRAINING FORCES BY CATEGORY

Driving Forces

THE PERSON

The constructional of professional identity happens quickly. (N11, 12b)

This is what a university professor *does*... this is what a (History, Economics, English, Marketing, Education) professor does...

"The combination of the content and the personality type" (N26)

Career Profile & Goals

- Tenured (N3.1, 3.6, 26)
- On a term teaching contact with no research funding available (N14)
- An interest in research on teaching (N14)

Roles of the Professoriate

- Sees attending sessions on teaching and thinking about teaching is a welcome break from other responsibilities (N20)
- Attending sessions on teaching are another way to meet people from other colleges (N20)
- Considering teaching as an academic and scholarly activity (N3.6)

Life Stages

- A supportive partner at home (N20)
- Confidence that comes with experience (N28)
- Spouse in the same department (N13)

Personal Style

- Suits personal style (N3.1, 22, 26)
- Relishes taking risks (N3.1, 26)
- Relieves the pressure to be the "expert" (N26)
- Like teaching (N3.1)
- The combination of the content and the personality type (N26)
- Easily bored (N22)
- Confidence level (N26)
- Actor "safety;" sense of safety at work (N3.1)

Values and Beliefs

Beliefs about Teaching

- Learning is magical (N22)
- A belief that students bring knowledge with them (N26)
- Would value this approach as a student (N8)
- Help a person develop into a wise *person* not just a product (N3.1)
- How these questions are responded to determine how an individual chooses to teach: Why are we teaching? What value do we offer to people? to the marketplace? (N3.1)
- Understanding the progressive nature of learning (N19)

Personal Values

- A personal desire to improve the quality of education for students (+26) (N12b)
- "My mother was a teacher" (N14)
- Innate interest in teaching better (Strength +8) (N26, 27)

- Personal choice (+9) (N3.6)
- Sense of achievement (+6)
- Actors' values (N3.1)
- Achieve consistency with beliefs about how people think/learn and how I teach
- Intrinsic motivation (+20)
- Worth it personally (N3.1)
- Feel good helping others (N3.1)

Resonance with Innovation

- Having had positive experiences as a learner
- Having teachers who used active learning/having experienced active learning as a student (N21, 7.2)
- Having negative experience as a learner (N22)
- Having taught using active learning in other settings (N22, 25)

The Individual's Process of Change

- Comfortable and familiar with course content (N3.6, 20.1)
- Desire to try something new and keep fresh by reviewing and updating (N3.6, 22)
- Attending workshops to learn new ideas and methods (N19, 26)
- Incorporating successful practices (N19, 26)
- Experimenting over time (N3.6, 19)
- Being observed by a colleague (N19)
- Encouraging others (N14)

Driving Forces

THE INSTITUTION

"You need more time for research for small rewards while a small amount of time invested in teaching can make a big difference." (N3.5)

Organizational Context

CULTURE

- Creating space for people to talk about teaching
- Scheduled rituals around teaching
- A learning commons where we can share our experiences with active learning strategies (S-H)
- "Permitting" (but not encouraging) (N3.1)
- Value teaching dossier (N3.6)
- More discussions over coffee
- Changing the language to talk more about teaching
- Being around others who are excited about teaching
- Sharing techniques
- Sharing positive exciting stories
- Letting others know what you are doing specifically around teaching
- Focus talks on positive experiences
- Attitudes/culture among faculty (departments) (N10, 13)

Policy

- Faculty control
- Teaching dossiers (N3.6)

- A greater emphasis on teaching in all appointment and promotion proceedings (+13) (N3.6, 10, 26)
- Government agencies and foundations making more money available for research and experimentation on ways to improve teaching effectiveness (+14)
- Doing more to determine how much students have learned in their courses (+18)
- Technical support to make things happen (N3.1)
- More time with time away from administrative responsibilities.
- Time to experiment (N3.5)
- Using technology to simplify some things to buy time for others (N3.1)

Rewards

- Offering small grants to faculty members who wish to try new methods of instruction with the stipulation that each project be carefully evaluated and publicizing the results widely (22)
- Establishing prizes and other forms of recognition for good teaching (13)
- Rewards that value teaching rather than the rewards being time away from teaching
- Profile award winning teachers
- "Teaching chairs"
- The teaching dossier in the new tenure and promotion guidelines
- Publishing the results of a survey of recent graduates that reveals what they thought of their education (6)

- Good ratings when evaluated (N13)
- Positive comments from students increased (N13)
- To be known as a better teacher (N27)

Faculty Development

- Appropriate professional development (skills, techniques) (N3.1)
- Having support available
- Providing opportunities for instructors to receive assistance to improve their teaching (+20)
- Resources other than time: Not actually too bad on this campus, and getting better. More coordination of support facilities (which is also, slowly, happening) will help. (+4)
- Interdisciplinary workshops on teaching provide a break from routine (N20.2)
- Attending teaching conferences and workshops (N10, 12a, 15, 16, 19, 25)
- Gwenna Moss Centre (N15)

Peers

- Positive feedback from senior colleagues (N8)
- Receiving offers of help from others
- The values of administrators and teachers (N3.1)

Students

- Student satisfaction (+4)
- Student success (N8)
- Requiring student evaluations for all courses and sections (+14)

- Student enthusiasm (N19, 20.1)
- Student interest in the content (N19, 20.1)
- Feeling appreciated by students (N32)
- Evaluated highly by students (N13, 27)
- Student ability (N16)

Driving Forces

THE INNOVATION -- *Knowing what is possible* (N32*)*

Teaching is like an experiment, an academic activity done in the spirit of inquiry.

Advantage over other methods

- Recognition that active learning works better at getting students to learn (+10, +7)
- Recognition that it works better
- Quality of learning (+9)
- Results from research (+6)
- Effectiveness of learning
- Knowing what constitutes “effective” teaching
- Focus on critical thinking skills vs. focus on knowledge acquisition
- More fun (+9, +10) (N26)
- Education of actors regarding positive outcomes for students (research-based)
- Recognition of need for something different (+8)
- Recognition of need (+8)
- Keeping things fresh by reviewing and updating

- More likely to be able to link to students' personal experiences than lecture (N20.1)
- If you do nothing, technology is driving lecturers to even less engagement (N3.1)
- If we do nothing students can sign up for an on-line course (N3.1)
- Technology driven; cheaper and cheaper to do "clicker" etc (N3.1)

Compatible

- Realizing that there is a lot more possible
- Teaching how to think like a teacher
- Technology: can do more, more easily, all the time. In my case, very important: look for ways of streamlining routine tasks. Also have a backlist of stuff I want to do once the technology is available. Strength +6 (N5.1)
- Compatible with content area of Science and the importance of labs (N21)
- When the course objectives include skills and values that can be reinforced/practiced by using active learning (N23, 26)
- Student demand (although not really a factor unless I can convince myself what they want will actually help them learn better) Strength+1 (N5.1)

How complex is it to learn?

Easily tried (nothing)

- Start in one class and then add (N8)

Are the results observable? (nothing)

Restraining Forces

THE PERSON

The constructional of professional identity happens quickly. (N11, 12b)

This is what a university professor *does*...

And more specifically.... this is what a (History, Economics, English, Marketing, Education) professor does...

Roles of the Professoriate

- Professional and personal autonomy in the role of faculty member (-7)
- The various activities that professors are engaged in generally compliment their *content* but not the process of teaching (N20.1)
- A blurring of the line between student and teacher may occur with active learning (N26)
- Rapidly set professional identity (N11)

Career Profile & Goals

- Personal interest in other areas (-13)

Life Stages

- harder when you are considered an “old guy” and not cute and hip (N28)

Values & Beliefs

- lack of alignment between stated and enacted beliefs (N24, 31)
- believing that students only get what you want them to get if you tell them (N30)
- no belief in active learning (N31)
- believing from stories that teaching isn’t going so well in other departments (N11)

Resonance with Innovation (nothing)

The Individual's Process of Change

- Teachers teaching how *they* were taught (N3.6)
- Stress
- Feeling drained by teaching in general (N32)
- Actors' (lack of) comfort with silence vs. student "noise"
- Fear (N19), fear of looking silly, fear of looking stupid (N3.6)
- (Lack of) Expertise (-2)
- Comfort with content (N20.1, 23)

Restraining Forces

THE INSTITUTION

"You can get away with bad teaching if you are good at other things." (N29)

Organizational Context

CULTURE

- Emphasis on research and writing (-14)
- Teaching is "not the path to success" (N3.6)
- Lack of systemic embedding of teaching in the culture of the institution
- "Permitting" (but not encouraging) active learning (N3.1)
- Accepting "adequate" teaching (N3.6)
- Institutional indifference (N3.1)
- Systemic discrimination of teaching
- Low status of teaching (N14)
- Being a good teacher is seen as a bonus but hardly a requirement
- Culture needing to change to value teaching

- Lack of safe environment to innovate (N3.1)
- "Getting through the course" (N3.1)
- "Bean counting" articles (N3.6)
- Autonomy: reviews by others have almost no impact on your work (N10)
- Time/workload (-10, -10, -9) (N3.1, 31)
- Using time for other things (N3.6)
- The time needed to try things out and experiment takes away from other things

Policy

- Hiring criteria – more emphasis on research (N3.6)
- Recruitment conflict (N3.1)
- Competition for resources (-12)
- Little or no funding available for field trips (N9)

Rewards

- A one-time bonus of $1000 for teaching merit rather than an increment of the same to the base salary that occurs with research (research goes on salary) (N3.6)
- Reward system that value status quo outcomes/publications (N10, 25, 28)
- Easier to get evidence for research (N10)
- Institutional recognition: lack of this is the major restraining force. Lots of lip service, no real encouragement. Where are the Canada Teaching Chairs? Where is the research relief for outstanding teachers? Strength -6
- Conflicting messages given through the university reward structure (-18)

- Being a teacher has not been highly regarded or rewarded organizationally (-14)
- Highly competitive nature of the promotion system (-15)
- Research merit increases go on the salary (N3.6)
- The reward system actively discourages teaching (N21)
- The dean or department cannot step in and reward (N10)
- No one gets promoted on good teaching (N3.1)
- Reward structure (N3.1)

Faculty Development (none)

Interpersonal Context

Peers

- Teaching collaboratively with colleagues who may not share the same enthusiasm (N3.6)
- Lack of collegial support (N23)
- Attitudes among faculty (departments) – culture
- Multiple sections of a course that need to be consistent with each other; consistent delivery (N3.6)
- Word of mouth about a course (N3.6)
- Teachers teaching how they were taught (N3.6)
- Attitudes of colleagues (N3.6)
- Tying in with colleagues (N3.6)
- Peer modeling, peer reviewers that value lecture
- Specialization of faculty (-10)

- Content bias (N11)
- Lack of social proof (seeing others who are like you doing the thing)
- Feeling like an “oddball” for being interested ion teaching (N23)
- Resistance (-5, -7)
- Isolation and fragmented communication among faculty members given the great degree of autonomy and specialization (-17)
- Peers’ fear of “loss of control” in classroom
- Colleagues’ discomfort (N3.1)
- Administration discomfort (N3.1)

Students

- Rate–my-professor (N3.6)
- Competition among students (N28)
- Diversity of the student population (N28)
- The ability of students admitted under special circumstances to handle the work (N28)
- Student resistance (-8, -7) (N9, 14)
- Complaints (N28)
- Expectations of students (N26)
- Student compliance
- Desire for traditional methods; conservative (N3.1, 26)
- Perceived ability, competence and preparedness of students (N23, 24, 27, 29)
- Student pressure for PowerPoint and supply handouts (N23)

- Student beliefs about what equals learning/good teaching (N26)
- Not wanting “impose” activities on the students (N31)
- How a course is categorized makes a difference as to how students view the course and the expectations they have for the course (N9, 11)
- Students not wanting to do much out of class (N9)
- Students are paranoid (N3.1)
- Marks (arguing about grades, “Will it affect my grade?”) (N3.1)

Restraining Forces

THE INNOVATION

There is no (minimal) dissatisfaction with the existing situation

- Not time-bound like writing an article

What is its relative advantage over other methods?

- Lack of faith in active learning strategies (N28)

Observable

- Lack of models (N3.1)
- Lack of benchmark models (N3.1)
- Hard to measure what is learned in any case and even harder with active learning (N30)
- No change is noticed (N30)

Complex

- Know-how (5)
- Too many choices!
- Confusion about what to actually do

- Confusion about what active learning actually is
- Confusing active learning with an entertaining presentation style (N21)
- Belief that giving assignments for outside of class is integrating active learning (N22)
- Resources (6)
- Knowing that there is a lot more possible in teaching
- Thinking you already have it figured out
- Teaching specific strategies at as workshop rather than showing the range of possibilities

Easily tried

- An assessment system that isn't compatible
- Time!!!
- Bureaucracy that restricts spontaneity in the preparation of learning materials
- It is easier to do in the lab (N21, 21.2)
- The classroom set-up is not conducive (N23, 28)
- Large classes (N10, 13, 23)
- Failure (N26)
- Scheduling issues (N11)
- Time constraints to develop new approaches
- Time (-9)
- TIME that it takes to prepare
- Lack of time to experiment (-10)

- The time needed to try things out and experiment

Compatible

- Concern with covering the content (N25)
- Not seen as being compatible with the subject matter (N29)
- Not seen as being compatible with assessment practices (N10)
- Believing students can learn on their own
- It may go badly the first time and a negative reaction from administration
- Technology (-9)
- Resources (-6)
- Actors' reliance on publishers' textbooks (N23)
- Other support items such as pod casts
- The various activities that professors are engaged in can generally compliment the *content* they are teaching but not the way in which they are teaching (N20.1)
- Technology (-9)
- Technology (PowerPoint) (N23)
- Class length is not long enough for activities (N9)
- Technology driving to less active(N3.1)
- Evaluation criteria – competing force to learning (N3.1)
- Reliance on publishers' texts and powerpoint (no passion) (N3.1)
- Threatened by noise (quiet is easier and more safe) (N3.1)

Are the results observable?

- Difficult to define or measure good teaching (N10)

Table G.6.

Driving and Restraining Forces.

Category	Driving	Restraining	Difference
Person	**44**	**18**	**26d**
Career goals	3	2	1D
Roles	3	4	1R
Life stages	3	1	1d
Personal style	8	0	8D
Values & beliefs	16	4	12D
Resonance	4	0	4D
Process of Change	7	7	0
Institution	**50**	**69**	**19R**
Culture	13	18	5R
Policy	9	4	5D
Rewards	10	15	5R
Faculty development	7	0	7D
Peers	3	18	15R
Students	9	17	8R
Innovation	**24**	**47**	**23R**
Relative advantage	16	1	15D
Compatibility	5	17	12R
Complexity	0	10	10R
Easy To Try	1	15	14R
Observable Results	0	5	5R